DataBook
T_s-MEXTG02M1_012024_EN - R410A

INVERTER
EEV ELEC. EXP. VALVE
EC FAN

S-MEXT-G02-M1

22178-40263 Btu/h [6-13 kW]

Indoor evaporating unit for IT Cooling application.
For connection to Mr. Slim outdoor condensing unit.



R HFC R-410A

(The photo of the unit is indicative and may vary depending on the model)

- FOR SMALL DATA ROOM
- AIR DELIVERY FROM THE BOTTOM OR FROM THE TOP
- SINGLE REFRIGERANT CIRCUITIT
- AIR SUCTION TEMPERATURE UP TO 35°C / 95°F
- PLUG-FAN WITH EC ELECTRIC MOTORS
- TOTAL FRONT ACCESSIBILITY
- LAN CONNECTION UP TO 10 UNITS

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Changes for the Better

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S-MEXT-G02 M1

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ETL MARKING

RoHS Compliant 2011/65/EU

GENERAL CHARACTERISTICS
S-MEXT-G02-M1

Indoor evaporating unit for the close control air conditioning in:

- Small Data Center
- UPS rooms
- Batteries rooms
- Distribution rooms
- All areas of the Data Center that need a service of air conditioning.

The "state of the art" in components granting **high reliability** and **close control in temperature** following the trend of the thermal load thanks to the **BLDC inverter compressor**.

The **constructive solutions** and the **internal layout** allow **high application flexibility** and the **frontal access to the main components for the in check**.

Final assembly on all machines before shipment including running test, reading and monitoring of operating parameters, alarms simulation and visual check.

The series is available for operation with **R410A refrigerant**.

R410A



S-MEXT-G02
Indoor evaporating unit

Mr.SLIM



Outdoor
condensing unit

The S-MEXT-G02-M1 units are designed for operation with Mr. Slim outdoor condensing units in the PUY versions for refrigerant R410A.

For all the technical information of external condensing units, please refer to the Data Book and Manuals of Mr. Slim series.

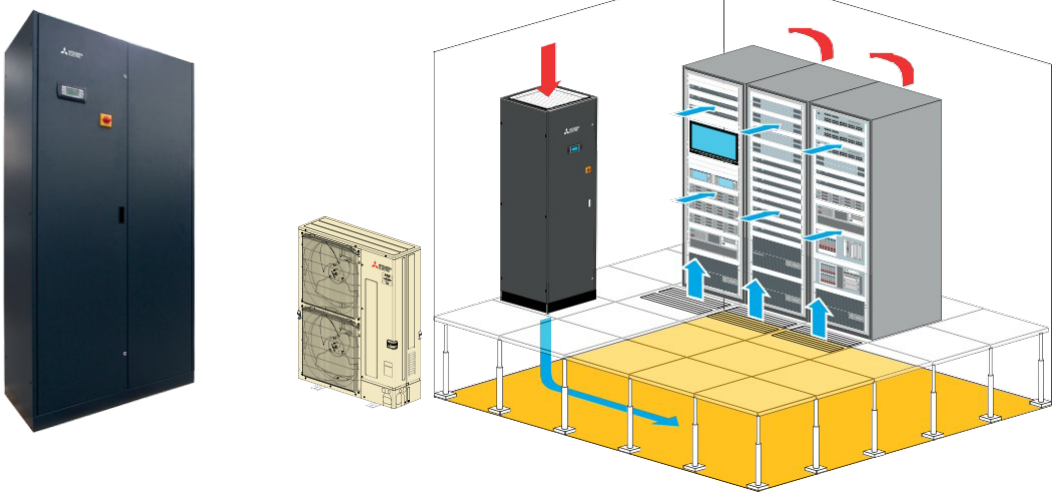
The extreme flexibility allows top installation that adapts perfectly to every requirement of the plant with 2 types of air supply for the indoor unit:

DOWNFLOW AIR DELIVERY (U - UNDER)

Application suitable for server racks with vented front and rear doors.

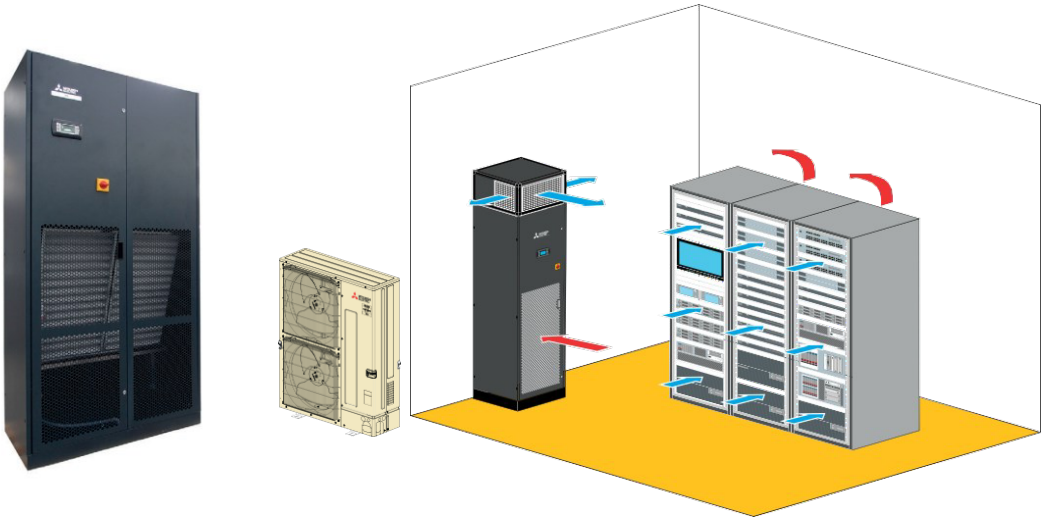
The air distribution is from the bottom by means of the plenum between the building floor and the raised floor. This solution is usually applied in hi-tech air conditioning, and it is most favorable when load is uniformly distributed in all areas of the room.

The air distribution is achieved by special tiles placed in front of the racks row, forming cold aisle for air diffusion. On the rear of the racks is expelled the hot air then aspirated by the unit.
For an optimal installation is advisable to provide the cold aisle containment.



UPFLOW AIR DELIVERY (O - OVER)

Application suitable for server racks with vented front and rear doors.
The air distribution is from the top of the unit directly into the room by a plenum (or duct).
The supply air flow can be directed through the adjustable fins of the plenum grilles.
The system is normally applied in systems where it is not possible to provide a raised floor.



THE S-MEXT-G02-M1 SERIES

The units have been designed for a quick and easy getting up. The installation requires only electrical and refrigerant connections.
The series is suitable for operation both with R410A refrigerant.
A set of accessories allows to control the room temperature even in heating by electric heaters and, if necessary, also, the humidity control by a modulating steam humidifier.

	UNDER	OVER
Model 006 **Size F1** Air flow 1215 cfm [2235 m³/h] Single refrigerant circuit		
Model 013 **Size F1** Air flow 1534 cfm [2606 m³/h] Single refrigerant circuit		

s-MEXT-G02-M1	Mr. SLIM
	R410A
Model 006 - Size F1	PUY-A24NHA7
Model 013 - Size F1	PUY-A42NHA7

PRODUCT FEATURES AND BENEFITS

- Operation R410A
- Improvement of the control software with advanced logic;
- Fast and easy installation.
- Plug fans with EC electric motors and impeller in aluminum or composite material, which guarantees a reduction of power consumption;
- New maintenance free electric motor of the fan;
- Variable air flow according to the load;

F-GAS DIRECTIVE

The units highlighted in this publication contain fluorinated greenhouse gases.

- HFC R410A [GWP100 2088]

MODEL IDENTIFICATION

S-MEXT-G02-M1-O-006A

INDOOR UNIT:

S-MEXT-G02 Series

M1 **Market type**
1-America

O **Air delivery**
O = over - up flow air delivery
U = under - downflow air delivery

013 Model / Cooling capacity (kW) at nominal conditions

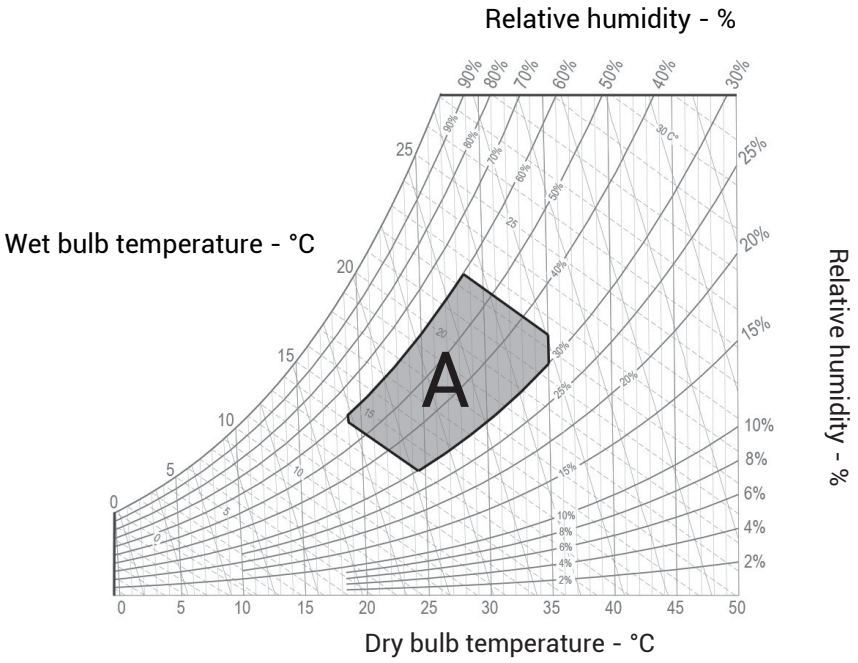
A Pre-configured unit version

Pre-configured, type A (base model)	
SKU: S-MEXT-G02-M1-x-xxxA	
A724	BASIC EC FAN
A546	ADJUSTABLE ESP
A559	230V/1ph/60Hz POWER SUPPLY
A501	WITH CLOGGED FILTER SENSOR
A491	WITH WATER LEAKAGE DETECTOR
381	NUMBERED WIRING ON EL. BOARD
P622	MERV8 AIR FILTER
A271	STD THERMO-ACOUSTIC INSULATION
A792	DELIVERY AIR CONTROL
9978	PALLET PACKING

Pre-configured, type B (with accessories)	
SKU: S-MEXT-G02-M1-x-xxxB	
A724	BASIC EC FAN
A546	ADJUSTABLE ESP
A559	230V/1ph/60Hz POWER SUPPLY
A501	WITH CLOGGED FILTER SENSOR
A491	WITH WATER LEAKAGE DETECTOR
381	NUMBERED WIRING ON EL. BOARD
P622	MERV8 AIR FILTER
A271	STD THERMO-ACOUSTIC INSULATION
A791	DELIVERY AIR CONTROL
9978	PALLET PACKING
4301	STEAM HUMIDIFIER 3kg/h UM03
P051	DEHUMIDIFICATION FUNCTION
P161	T/RH AIR INTAKE SENSOR
A431	BASIC ELECTRIC HEATER
4666	EXTERNAL AIR SENSOR

STORING TEMPERATURE

If the machine is not installed on receipt and is stored for a long time, store it in a protected place, at temperature ranging between -22˚F / [-30˚C] and 115˚F / [46˚C] in absence of superficial condensation and direct sun light.



ROOM AIR CONDITIONS

Room air temperature:	
57,2°F / [14°C]	Minimum temperature with wet bulb
72,5°F / [22.5°C]	Minimum temperature with wet bulb
66,2°F / [19°C]	Minimum temperature with dry bulb
95°F / [35°C]	Minimum temperature with dry bulb

AREA "A". Machine operating envelope.

Room air humidity:	
30%RH	Minimum relative humidity
60%RH	Maximum relative humidity

OUTSIDE AIR TEMPERATURE (dry bulb):

115°F / [46°C]	Maximum outside air temperature.
23°F /[-5°C]	Minimum outside air temperature.
5°F / [-15°C]	Minimum outside air temperature with optional "wind-baffle" installed.

All the values are indicative. The working temperatures are influenced by a series of variables as:

- Working conditions.
- Thermal load.
- Set of the microprocessor control.
- Installation pipe length - distance between indoor and outdoor unit.

POWER SUPPLY

± 10%	Maximum tolerance of the nominal supply voltage (V);
± 2%	Maximum unbalancing of the phases.

MAIN COMPONENTS - INDOOR UNIT





FRAMEWORK

- Base and frame in galvanized steel, painted with epoxy powders. Colour RAL 7016.The inner frame is provided with seals for the panels;
- Panels in galvanized steel sheet with protective surfaces treatment in compliance with UNI ISO 9227/ASTMB117 and ISO 7253, and painted with epoxy powders. Colour RAL 7016 hammered;
- Panels insulated with polyurethane foam based on polyester polyol with melted protective film and seals to ensure air tight. Fire resistance HF1 - UL94;
- Hinged front panels with key fasteners and removable lateral and back side panels;
- Total front routine maintenance;
- Compartment for electrical panel on unit front for direct access to control and regulation devices;
- Air flow UNDER version: Air intake from the top and air delivery from the bottom;
- Air flow OVER version: Air intake from the front through honeycomb type grille and air delivery from the top with protectionguard grille.





AIR FILTERS SECTION

- Washable air filters with COARSE 60% efficiency (according to ISO EN 16890) with cells in synthetic fibre and metallic frame;
- Air filters access on unit front;
- Clogged filters sensor with differential pressure switch on air side.



COOLING SECTION

- Heat exchanger coil with internally corrugated copper tubes and high efficiency aluminium fins, specifically developed to provide high heat transfer and lower pressure drops;
- Finned pack with hydrophilic treatment that assure the condensate water drop, high thermal conductivity and does not favour the growth of micro-organisms;
- Frame in peraluman;
- Condensate tray in stainless steel with PVC flexible discharge pipe;
- Temperature sensor on air return/delivery.
- Additional condensing tray in peraluman for Under version;
- Water leakage detector for water presence alarm. For Over version the sensor is installed on the base inside the unit. For Under version the sensor is supplied to be installed at customer care in the additional condensing tray;

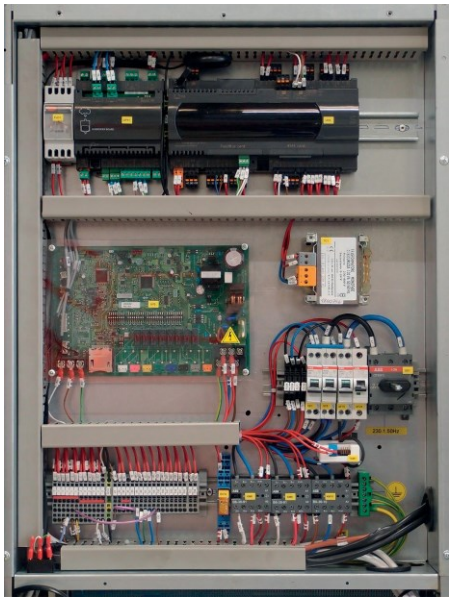
REFRIGERANT CIRCUIT

- Sealing charge with nitrogen;
- Valves on liquid / suction lines for coupling to remote outdoor unit;
- Low pressure transducer.
- Access valve 5/16" SAE with core and cap for charge plug on inl and outlet coil side.



FAN SECTION

- Centrifugal fans with backward curved blades with wing profile, single suction and without scroll housings (Plug-fans), directly coupled to external rotor electric motor;
- Impeller in aluminum or in composite material exempt from rust formation;
- Brushless type synchronous EC motor with integrated electronic commutated system;
- Fans speed control with proportional signal 0-10V;
- Fan protection guard grille on discharge side for Over version;
- Available external static pressure from 20 Pa up to max, adju-
- stable with air flow rate.
- Continuous fan operation, even in standby mode, to guarantee a refrigerant mix in case of leak. The only way to stop the fan is to turn off the power supply, or in case of fire alarm.
- Air flow loss alarm with pressure-switch connected to pressure probe on the nozzle to set alarm in case of insufficient air flow rate, to guarantee an increased security in case of refrigerant leak.



ELECTRICAL PANEL

In accordance with IEC60204-1 norms, suitable for indoor installation, complete with:

- Main switch with door lock safety on front panel;
- Thermal-magnetic circuit breaker for supply fan;
- Transformer for auxiliary circuit and microprocessor supply;
- Numbered electric cables;
- Interface board (PAC IF) for connection to outdoor unit (one board for each outdoor unit);
- Terminals for remote enabling, General Alarm signal and machi ne status;
- Power supply (power supply is independent from the outdoor unit) of 240/1/60.

SAFETY DEVICES

- Automatic system to disconnect the power supply to fan in case
- of fire or smoke alarm (detectors suppled as optional);
- Leak sensor input (not supplied with the unit);
- Pressure switch for air flow loss alarm;
- Water leakage detector for water presence alarm;
- Additional condensing tray in peraluman for Under version;
- Metallic brackets to bind the unit.

MICROPROCESSOR CONTROL SYSTEM

The microprocessor control of the indoor unit manages the whole system, including the request to the outdoor unit.
INDOOR UNIT: s-MEXT-G02-M1
The indoor unit is equipped with the controller connected to a 6 keys keyboard with graphic display on which all information in English language or easily identifiable symbols are displayed.
The controller disposes of a "flash" memory that preserves the information even in absence of power supply. Part of memory is dedicated to the registration of intervened events - up to 200 events.



INDOOR UNIT Controller

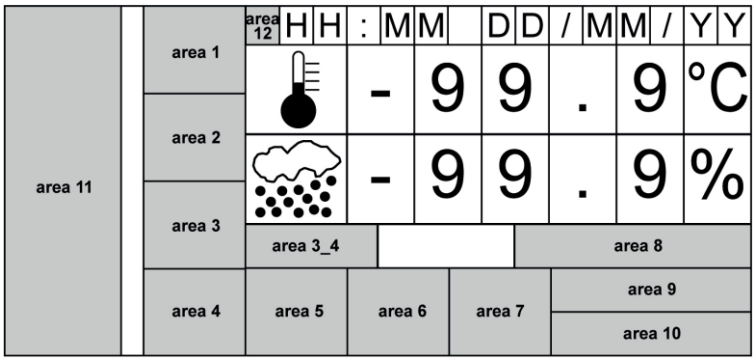


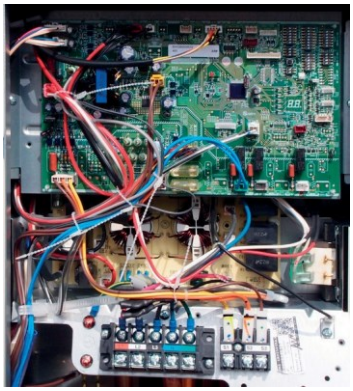
INDOOR UNIT Keyboard and Display

DISPLAY - KEYBOARD FUNCTIONS

	ALARM	Alarm presence with red light. Push for alarm description. In case of more alarms scroll by UP / DOWN.
Prg	PRG	Menu list scrolled by UP/DOWN: Unit; Set-point; In/Out; Clock; History; User; Service; Factory. ENTER to execute.
Esc	ESC	Home. Used to come back to the previous menu level or to the main screen.
	UP DOWN	Changes pages and values of sets. By pressing in HOME mask, the synoptic of the main controls is displayed.
	ENTER	Moving the cursor on adjustable Program(s) fields to confirm the changes. Press ENTER to get out the fields.

DISPLAY - MAIN MASK




INDOOR UNIT
Interface card (PAC IF)

The main mask shows time, date, room temperature and humidity values (if the relative probe is present) and areas for displaying operating and alarm status with dedicated icons:

Area 1: Status of the unit: on / off
Area 2: Status detail
Area 3: Type of event (only in case of an event)
Area 3_A: Code and type of event
Area 4: Active cooling devices Area
Area 5: Active free-cooling devices
Area 6: Active humidity devices
Area 7: Active heating devices
Area 8: on / off parameters Area
Area 9: BMS address
Area 10: LAN address
Area 11: Schematic representation of units

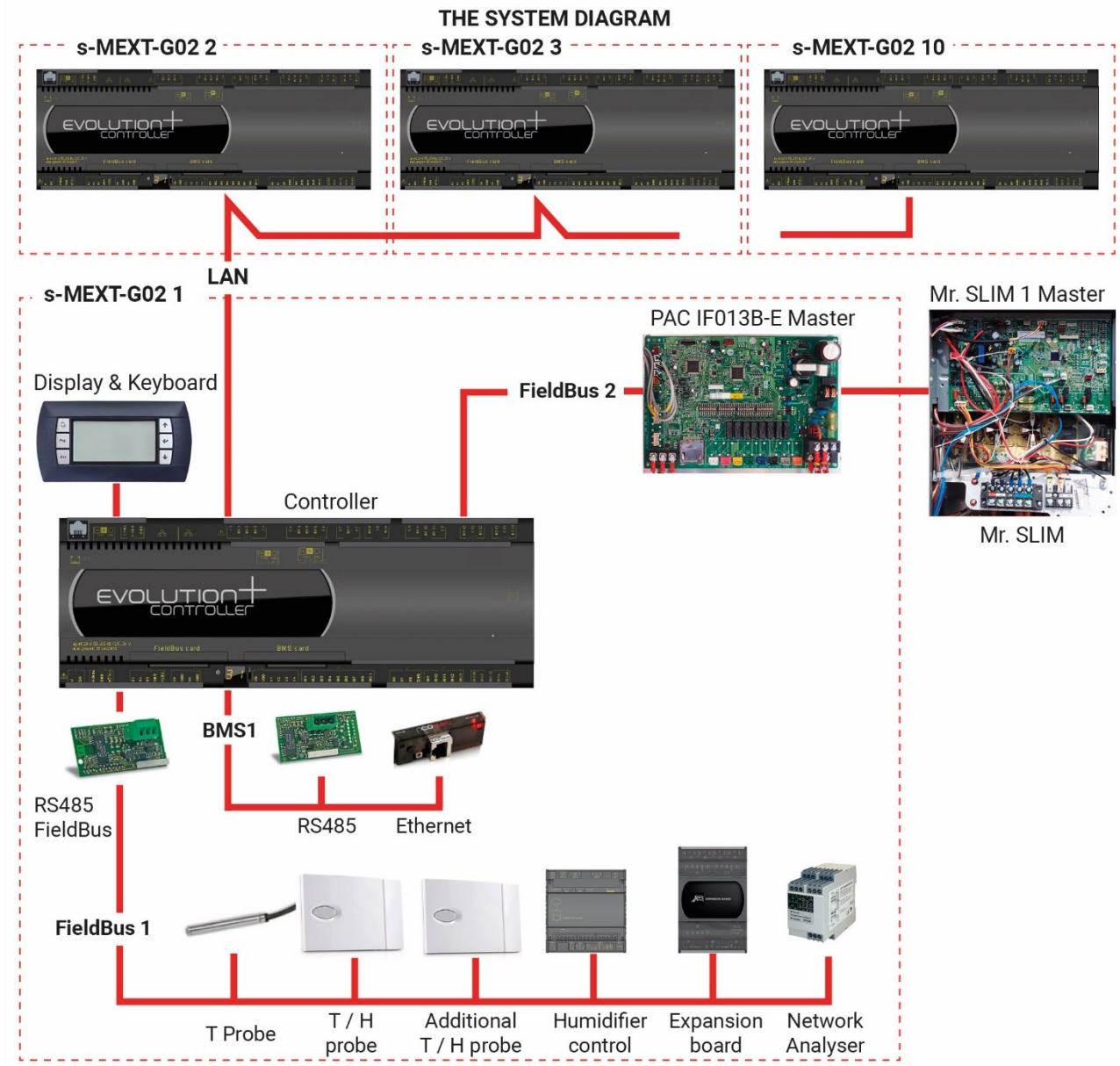
Indoor unit is connected with the outdoor unit via an interface card that allows data transfer and communication between the control systems.



OUTDOOR UNIT

INDOOR UNIT: S-MEXT-G02-M1
The unit is controlled by a dedicated electronic card connected with the inverter system for the compressor speed management.

THE SYSTEM DIAGRAM



CONNECTIVITY
BMS 1: connection to BMS via serial port:
- ModBUS/ RS485;
- BACnet per Ethernet - SNMP - TCP/IP;

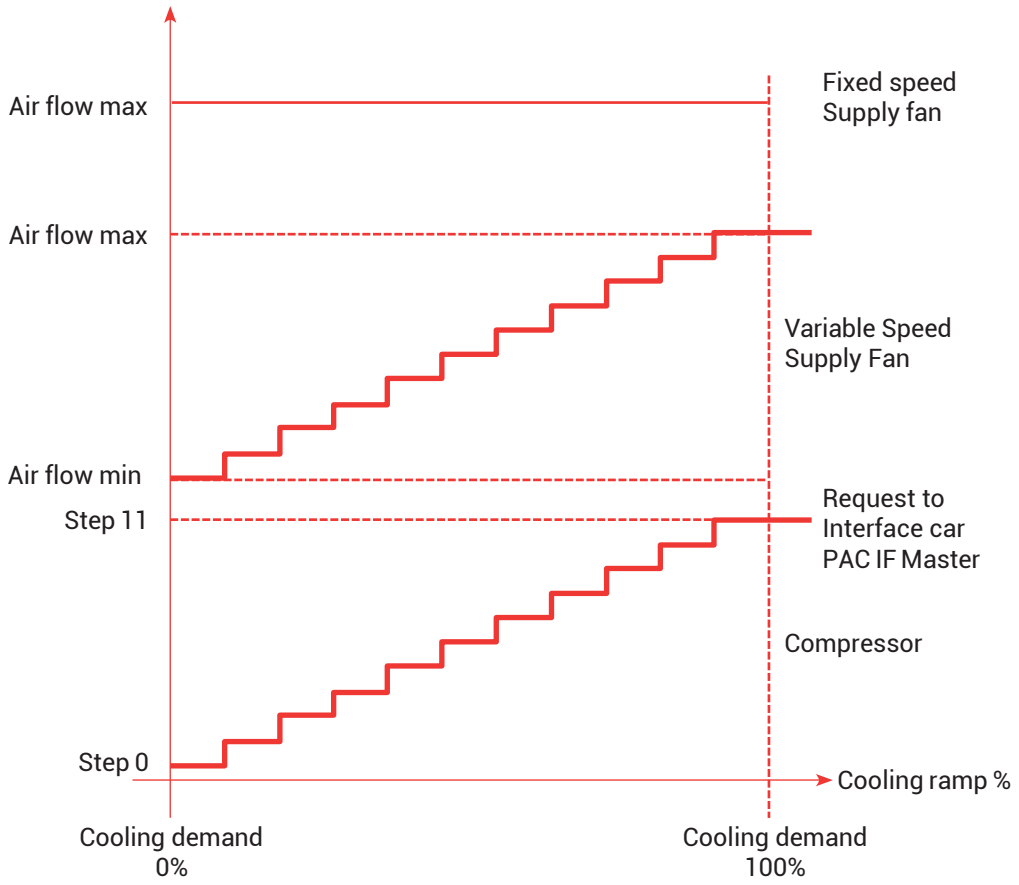
Fieldbus 1: MODBUS serial port for probes, transducers connection or other devices;
Fieldbus 2: MODBUS serial port for connection to interface card PAC IF013B-E;
LAN: LAN network up to 10 units.

LAN NETWORK (max 10 units)
The LAN connection allows to perform the following functions:

- Balance operating hours among the different units by rotating the reserve unit (Standby);
- Turn-on the reserve unit in case other units off due to alarm, maintenance or power feed interruption;
- Turn-on reserve unit to offset the excessive thermal load;
- Checking up to 10 units with a single user terminal (shared user terminal); Electrical connections are in electrical panel connecting terminals.

TEMPERATURE PROBE ON AIR INTAKE / SUPPLY
The request for cooling is calculated by the indoor unit based on the value of the supply air temperature (regulation on supply air temperature) with PID regulator (0-100%).
The request is converted into 11 steps for the compressor management.
The controller of the indoor unit sends the signal corresponding to the cooling capacity required to the PAC IF card which transmits the request to the outdoor unit.

AIR FLOW CONTROL IN COOLING MODE
A constant air flow is maintained, independently of the control signal (fixed speed supply fan).
Alternatively, the air flow modulates according to the cooling request (variable speed supply fan).





TEMPERATURE PROBE ON AIR INTAKE/SUPPLY

Temperature probe installed on the air return and delivery for temperature control.



CLOGGED FILTERS

The system includes a differential pressure switch installed in the electrical panel or in the front compartment of the indoor unit and the plastic hoses for the relief of the pressure upstream and downstream the air filters.

Control range: 0.3 … 4.0 mbar (30 … 400 Pa)
Differential for intervention: 0.15 mbar (15 Pa)



AIR FLOW LOSS ALARM

The system includes a differential pressure switch installed in the electrical panel or in the front compartment of the indoor unit and the plastic hoses for the relief of the pressure in fan mouth.

Control range: 0.2 … 2.0 mbar (20 … 200 Pa)
Differential for intervention: 0.1 mbar (10 Pa)
Supplied with the sensor set at fixed point of 0.2mbar, no availability to change it.



WATER LEAKAGE DETECTOR

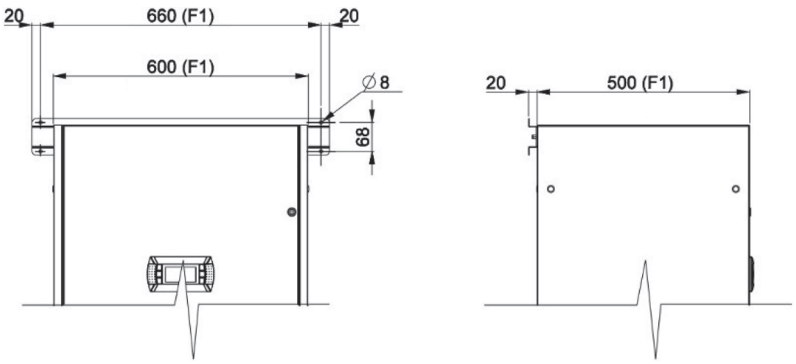
The system includes an electronic relay installed in the electrical panel of the indoor machine.
The electrical connections for the probe and the alarm contact are present in the indoor machine's terminal board.
Sensor is installed inside unit for Overflow version and supplied to be connected and installed at customer care for Under flow units.

UNIT BIND BRACKET

The bracket is supplied in mounting kit.
This bracket is supplied complete with fixing bolts to the machine.
This is a safety device that must be installed together with the unit and connected to a structural part in the installation site (wall, structure, etc.) to prevent the risk of unit overturning due to external causes (accidental impact, earthquake, etc.).
Wall fixing screws not supplied.



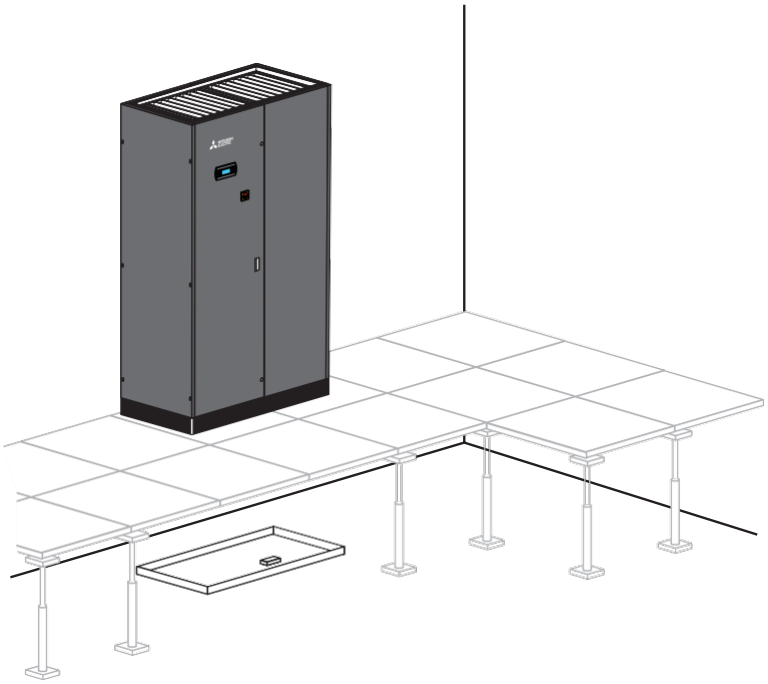


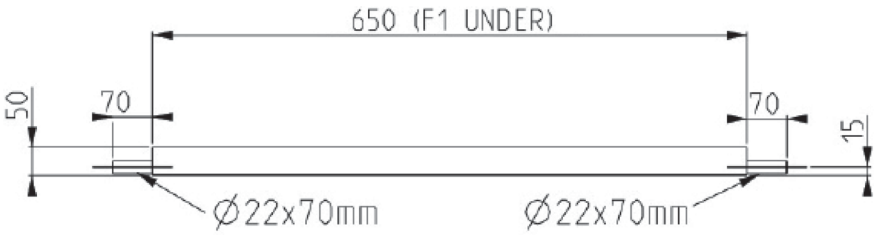


Dimensions in millimetres

CONDENSATE TRAY (only UNDER version)

Additional condensing tray for Under flow version in peraluman.
This component must be considered as a safety device to install in the floor under the unit in the event of water leaks.
The water leakage sensor is supplied to be installed at customer care in the additional condensing tray.
The tray is equipped with a water drainage system Ø 22mm.







Dimensions in millimetres

MODEL		006	006	013	013
\SIZE		F1	F1	F1	F1
VERSION (1)		O	U	O	U
OUTDOOR UNIT					
Quantity	No.	1	1	1	1
Model	PUY	A24NHA7	A24NHA7	A42NHA7	A42NHA7
Power input (2)	kW	1.17	1.17	3.52	3.52
Power Supply	V/Ph/Hz	208-230///1/60	208-230///1/60	208-230//1//60	208-230//1//60
Power supply wiring cable (7)	No. x mm2	3G4	3G4	5G1.5	5G1.5
INDOOR UNIT					
COOLING CAPACITY (2)					
Total	BTU/h – [kW]	22178 - [6.5]	22178 - [6.5]	40263 - [11.7]	40263 - [11.7]
Sensible	BTU/h – [kW]	22178 - [6.5]	22178 - [6.5]	34121 - [10.3]	34121 - [10.3]
SHR (3)		1	1	0.88	0.88
System EER (nominal)	BTU/(W*h)	15.10	15.20	10.88	10.94
"EC" SUPPLY FAN	No.	1	1	1	1
Air flow	Cfm [m³/h]	1315 [2235]	1315 [2235]	1534 [2606]	1534 [2606]
Nominal ext. static pressure	[in H2O] Pa	0,08 [20]	0,08 [20]	0,08 [20]	0,08 [20]
Maximum external static pressure	Pa	0.31 [26]	0.37 [26]	1.43 [20]	1.49 [20]
Power input (4)	kW	0.30	0.30	0.43	0.41
INDOOR UNIT ELECTRICAL DATA					
Nominal absorbed current	A	2.1	2.1	2.6	2.6
Starting current (SA)	A	2.0	2.0	2.8	2.8
Max absorbed current (FLA)	A	2.4	2.4	3.3	3.3
Power input Electrical Panel	kW	0.14	0.14	0.14	0.14
SOUND LEVEL ISO 3744 (5)					
Pressure level	dB(A)	57	57	61	61
Power level	dB(A)	73	73	77	77
AIR FILTERS	No.	1	1	1	1
Extended filtering surface	m2	0.68	0.68	0.68	0.68
Efficiency (ISO EN 16890)	COARSE	60%	60%	60%	60%
REFRIGERANT CIRCUITS	No.	1	1	1	1
POWER SUPPLY	V/Ph/Hz	208-230/1/60	208-230/1/60	208-230/1/60	208 230/1/60
DIMENSIONS					
Length	in [mm]	23,6/[600]	23,6/[600]	23,6/[600]	23,6/[600]
Depth	in [mm]	19,7/[500]	19,7/[500]	19,7/[500]	19,7/[500]
Height	in [mm]	78,0/[1980]	78,0/[1980]	78,0/[1980]	78,0/[1980]
NET WEIGHT Over	Lbs [kg]	233.69/[106]	233.69/[106]	242.50/[110]	242.50/[110]
NET WEIGHT Under	Lbs [kg]	253.53/[115]	253.53/[115]	264.55/[120]	264.55/[120]
CONNECTIONS					
Refrigerant pipes: Gas - Liquid	Ø Inch	5/8" - 3/8"	5/8" - 3/8"	5/8" - 3/8"	5/8" - 3/8"
Condensate (6)	Ø mm	19	19	19	19
Power supply wiring cable (7)	No. x mm2	3xAWG 14	3xAWG 14	3xAWG 14	3xAWG 14

THE COOLING CAPACITY DOES NOT CONSIDER THE SUPPLY FAN MOTOR THERMAL LOAD

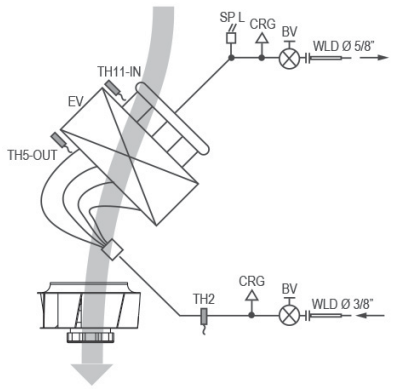
1. U = Under, downflow / O = Over, upflow
2. Gross value. Characteristics referred to entering air at **81 F°[27°C]** / **-47% RH**;
   Ambient temperature **95 F° [**35°C]**;** ESP = **in H2O 0.08 [**20Pa]; Connection pipes length 16.40 ft [5m];
3. SHR = Sensible cooling capacity / Total cooling capacity.
4. Corresponding to the nominal ESP= **in H2O 0.08 [**20Pa]. (*) Referred to nominal air flow.
5. Sound pressure level on air return at **3.28 ft** [1m]**.**
6. Rubber pipe - referred to internal diameter.
7. Minimum section of the power cable for units without accessories.

These units contain HFC R410A [GWP100 2088]

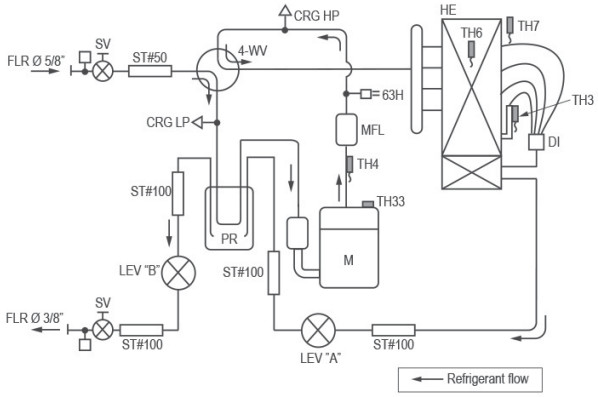
Below refrigerant diagrams. The diagrams refer to the standard configuration, without optional.

S-MEXT-G02-M1 006 F1
S-MEXT-G02-M1 013 F1

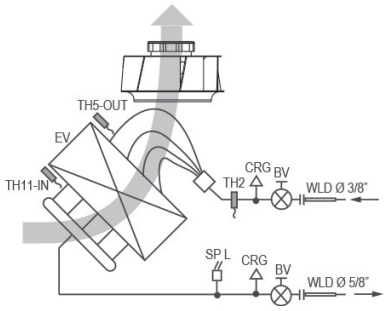
INDOOR UNIT - UNDER



OUTDOOR UNIT



INDOOR UNIT - OVER



LEGENDA

M	BLDC inverter compressor	ACC	Accumulator
TH …	Thermistor	SV	Stop valve with service port
MFL	Muffler	FLR	FLARER connection
63H	High pressure switch	CRG LP	Charge plug on low pressure
CRG HP	Charge plug on high pressure side	WLD	WELDING connection
4-WV	4-way valve only in cooling position	CRG	Charge plug
HE	Heat exchanger	TH-IN	Air inlet temperature probe
DI	Distributor	TH-OUT	Air outlet temperature probe
ST#...	Strainer	EV	Evaporating coil
LEV …	Linear expansion valve	BV	Ball valve
PR	Power receiver	SP L	Low pressure transducer

COOLING CAPACITY CORRECTION FACTORS

COOLING CAPACITY CORRECTION FACTORS ACCORDING TO REFRIGERANT PIPING LENGTH

Indoor unit Outdoor unit	Refrigerant piping length (one way)												
	5m	10m	20m	30m	40m	50m	55m	60m	70m	75m	80m	90m	100m
006 F1 PUY-A24NHA7	1.000	0.985	0.957	0.932	0.909	0.888	0.879	0.870	0.854	0.847	X	X	X
013 F1 PUY-A42NHA7	1.000	0.981	0.948	0.917	0.887	0.861	0.848	0.836	0.814	0.804	X	X	X

X = NOT ALLOWED

PIPE LENGTH AND REFRIGERANT CHARGE

ADDITIONAL REFRIGERANT CHARGING FOR PIPE OF STANDARD DIAMETER ACCORDING TO REFRIGERANT PIPING LENGTH

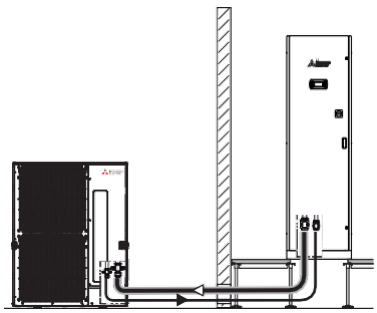
Indoor unit Outdoor unit	Refrigerant piping length (one way)								
	<30m	31…40m	41…50m	51…60m	61…65m	65…70m	70…75m	75…90m	90…100m
	No additional charge	Additional charge (kG)							
006 F1 PUY-A24NHA7	---	0.4	0.8	1.2	1.4	1.4	1.8	X	X
013 F1 PUY-A42NHA7	---	0.4	0.8	1.2	1.4	1.4	1.8	X	X

Note: --- = NO ADDITIONAL CHARGE X = NOT ALLOWED

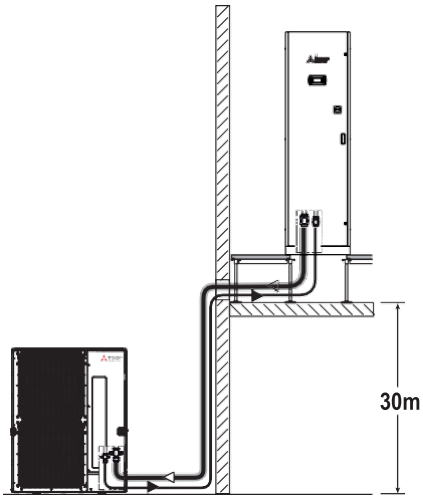
PIPING DIAMETER TABLE

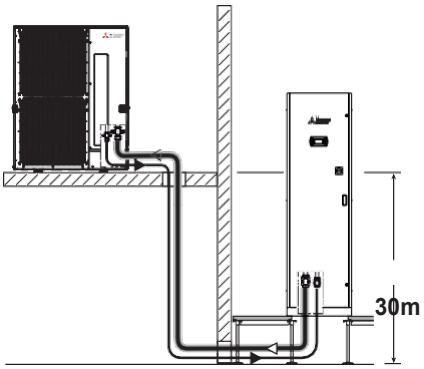
Nominal dimension (inch)	1/4"	3/8"	1/2"	5/8"	3/4"	1"
External diameter (mm)	6,35	9,52	12,70	15,88	19,05	25,40

DIAGRAMS VALID FOR UNDER AND OVER UNITS APPLIES THIS DIAGRAM TO EACH REFRIGERANT CIRCUIT OF THE UNIT.



THE REFRIGERANT CIRCUIT DOESN'T NEED TRAPS OR PRECAUTION FOR LUBRICANT OIL RETURN TO THE COMPRESSOR





▶ LIQUID LINE
◁ GAS LINE - Insulated

Acoustic data of the standard machines at full load working conditions.

WARNING:

In a room the noise produced by a sound source reaches the listener in two different ways:

- Directly
- Reflected from the surrounding walls, floor, ceiling and furniture.

With the same sound source, the noise produced in a room is greater than that produced outdoors. In fact, the sound pressure level generated by the source must be added to the one reflected from the room. Also, the shape of the room affects the sound.

INDOOR UNIT			
MODEL		**006**	**013**
SIZE		**F1**	**F1**
VERSION (1)		U / O	U / O
SOUND LEVEL ISO EN 3744 (2)			
On air delivery	dB(A)	64.9	68.9
On air intake UNDER	dB(A)	60.6	64.6
On front side OVER	dB(A)	55.6	59.6
On front side UNDER	dB(A)	50.8	54.9

1. U = Under, downflow / O = Over, upflow
2. Sound Pressure level at 1 meter in free field - ISO EN 3744

Electrical data of the system at full load working conditions.

INDOOR UNIT			
MODEL		**006**	**013**
SIZE		**F1**	**F1**
VERSION (1)		**U / O**	**U / O**
Power supply	V/Ph/Hz	230/1/60	230/1/60
Starting current (SA)	A	2.0	2.8
Only cooling			
MAX ABSORBED CURRENT (FLA)	A	2.4	3.3
MCA (Minimum Circuit Ampacity)	A	3	4.1
MOP (Max Over-Current Protection)	A	6	10
Cooling + Heating			
MAX ABSORBED CURRENT (FLA)	A	13.8	14.7
MCA (Minimum Circuit Ampacity)	A	17.3	18.4
MOP (Max Over-Current Protection)	A	20	20
Cooling + Humidifier			
MAX ABSORBED CURRENT (FLA)	A	12.2	13.1
MCA (Minimum Circuit Ampacity)	A	12.8	13.9
MOP (Max Over-Current Protection)	A	15	15
Cooling + Heating + Humidifier			
MAX ABSORBED CURRENT (FLA)	A	23.6	24.5
MCA (Minimum Circuit Ampacity)	A	27.1	28.2
MOP (Max Over-Current Protection)	A	30	30

1. U = Under, downflow / O = Over, upflow

The descriptions of these additional components can be found in Chapter OPTIONAL ACCESSORIES

P113	**Dual power supply -** External ATS: kit for double power supply with automatic change-over supplied in mounting kit.
A842	**Network analyser:** multifunction utility for calculating and displaying the machine electrical measurements, supplied in mounting kit.
A492	**Water leakage detector + additional sensor:** supplied in mounting kit;
A511	**Smoke detector.** Supplied in mounting kit.
A521	**Fire detector.** Supplied in mounting kit.
4301 / 4303 (2)	**Humidification:** Modulating steam humidifier with immersed electrodes with electronic control, all with a metal cover on the top. The optional foresee the combined Temperature / Humidity sensor on return air and control board.
P051 (3)	**Dehumidification function:** The optional foresee the combined Temperature / Humidity sensor on return air;
P161	**T/rH air intake sensor**
A431	**Electric heater:** Heating with electric heaters
A548	**Constant prevalence:** automatic system for the air pressure control in the underfloor (Under version) or in the duct (Over version). The system controls the supply fans rotation speed to keep constant the air pressure in the underfloor/duct via a differential pressure transmitter connected to the microprocessor control. Not compatible with constant flow control system.
A547	**Constant flow:** automatic system for the air flow control in the underfloor (Under version) or in the duct (Over version). The system controls the supply fans rotation speed to keep constant the air flow in the underfloor/duct via a differential pressure transmitter connected to the microprocessor control. Not compatible with constant prevalence control system.
P041 / P042 / P043	**Support frame** with height adjusting rubber holders. It is not possible to match the unit. floors stand with plenum installed under the machine. The optional is not suitable for installation in seismic areas.
A272	**Insulation.**
P084	Air filter ePM10 50%: High efficiency air filter.
A532	**Damper with spring return:** non-return air damper driven by electric servomotor installed on the top of units for all versions. The damper is never fully closed to guarantee a minimum air flow. The optional is not suitable for installation in seismic areas;
P011	**Empty plenum.** The optional is not suitable for installation in seismic areas.
P012	**Empty plenum with insulation.** The optional is not suitable for installation in seismic areas.
P013	**Plenum + 3 grilles on three sides with double adjustable row.** The optional is not suitable for installation in seismic areas.
P014	**Plenum + 3 grilles.** Plenum with grilles on three sides with double adjustable row. The optional is not suitable for installation in seismic areas.
P015	**Silenced plenum.** The optional is not suitable for installation in seismic areas.
P016	**Silenced plenum + 1 grille:** Plenum with grille with double adjustable row on front side and sound absorbers. The optional is not suitable for installation in seismic areas;
P031	**Empty intake plenum.** The optional is not suitable for installation in seismic areas.
P032	**Empty intake plenum with insulation.** The optional is not suitable for installation in seismic areas;
P033	**Silenced intake plenum.** The optional is not suitable for installation in seismic areas.
P034 (4)	**Intake free-cooling plenum for Under version.** The optional foresee the combined Temperature / Humidity sensor on machine air suction, the Temperature sensor for ambient air and the expansion board for the microprocessor control. The optional is not suitable for installation in seismic areas;
A812 (1)	**Free-cooling direct control.**

P034 (4)	**Intake free-cooling plenum for Under version.** The optional foresee the combined Temperature / Humidity sensor on machine air suction, the Temperature sensor for ambient air and the expansion board for the microprocessor control. The optional is not suitable for installation in seismic areas.
A812 (1)	**Free-cooling direct control.**
4666	**External air probe.**
P101	**Anti-seismic fixing kit,** supplied in mounting kit.
P151	**Lowered display for Under:** for units equipped with plenum under the unit. **Serial cards:** A471 - RS485 Serial Card A473 - Ethernet Card
P091	**Back-up module controller.** The system guarantees the microprocessor power. supply for a few minutes, in case of supply voltage failure. Not compatible with "Free-cooling plenum" and "Steam humidifier" optional accessories.
9973	**Wooden cage packing.** The machines are delivered on pallet, covered with shrink wrap and packaged in wooden cage.

WARNING

The Manufacturer reserves the right to accept the matching of the optional installed on the machine.

MANDATORY COMBINATIONS OF ACCESSORIES

1. When optional accessory "A812 Free cooling direct control" is present, it requires mandatory accessories. “P161 T/rH air intake sensor“ and “4666 External air probe".
2. When optional accessories "4301 / 4303 Steam humidifier" are present, they require mandatory accessory. “P161 T/rH air intake sensor “.
3. When optional accessory "P051 Dehumidification function" is present, it requires mandatory accessory "P161. T/rH air intake sensor “.
4. When optional accessory "P034 Intake free-cooling plenum" is present, it requires mandatory accessories. “P161 T/rH air intake sensor“, “4666 External air probe", “A812 Free-cooling direct control"

The descriptions of these additional components can be found in Chapter OPTIONAL ACCESSORIES.

P113	**Dual power supply - External ATS:** system with automatic change-over supplied in mounting kit;
P061	**Outdoor unit low temperature kit:** Wind baffle for operating with outdoor temperature. down to -5°F / [-15°C]; supplied in mounting kit.

WARNING
The Manufacturer reserves the right to accept the matching of the optional installed on the indoor and/or outdoor machines



Single-phase device



Three-phases device

OPTIONAL ACCESSORIES: P113 - DUAL POWER SUPPLY - EXTERNAL ATS

The optional is supplied in mounting kit and contained in polycarbonate box.
The optional is composed with 1 ATS for indoor unit and 1 ATS for outdoor unit.
The motorised changeover automatically manage changeover betweer two power supply lines, or manually for emergency operations.
These devices are suitable for low voltage systems with interruption o the supply to the load during transfer.
The model supplied in the automatic version checks the source and switches over automatically, based on configurable parameters.
OPEN TRANSITION TYPE TRANSFER SWITCH WITH A MINIMUM INTERRUPTION OF THE SUPPLY DURING TRANSFER.
To maintain the microprocessor powered and avoid its restarts is mandatory to foresee the installation of the "temporary microprocessor power supply" optional accessory. The system guarantees the microprocessor power supply for a few minutes, in case of supply voltage failure.
Considering that the power supply lines of the outdoor and indoor units are separate, two change-over devices are provided.
Install the device close to the unit.

INDOOR UNIT

Model	Power Supply	Quantity ATS	Installation
006 F1	230/1/60	1	EXTERNAL to the unit, supplied in kit
013 F1	230/1/60	1	EXTERNAL to the unit, supplied in kit

OUTDOOR UNIT

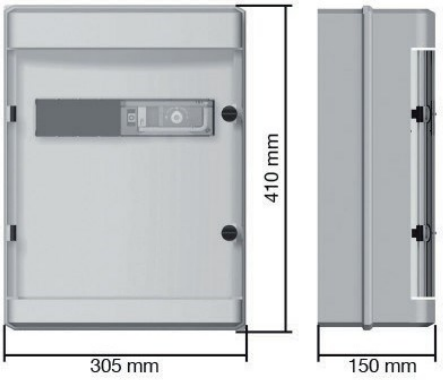
Model	Power Supply	Quantity ATS	Installation
A24NHA7	208-230///1/60	1	EXTERNAL to the unit, supplied in kit
A42NHA7	208-230///1/60	1	EXTERNAL to the unit, supplied in kit

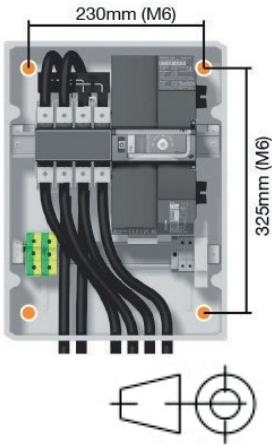


MOUNTING KIT

The wall mounting kit includes a plastic enclosure with following dimensions:

SINGLE-PHASE system - IP55

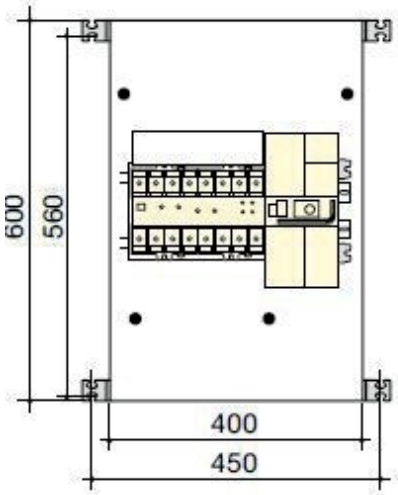


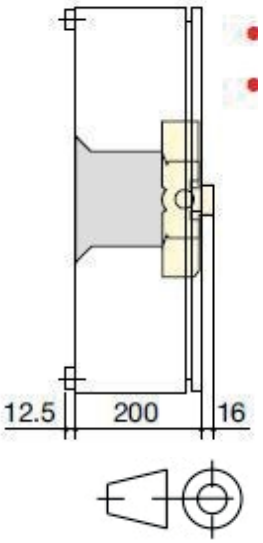


Dimensions in millimetres



THREE-PHASE system - IP55





Dimensions in millimetres

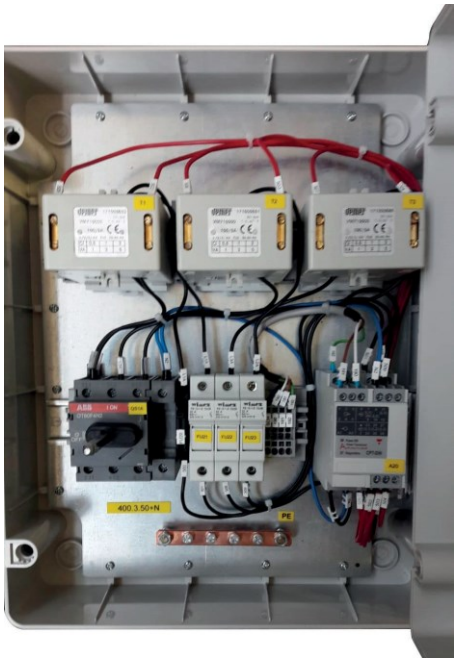
Wall-mounting fixing screws not supplied.
Electrical connections at Customer care.



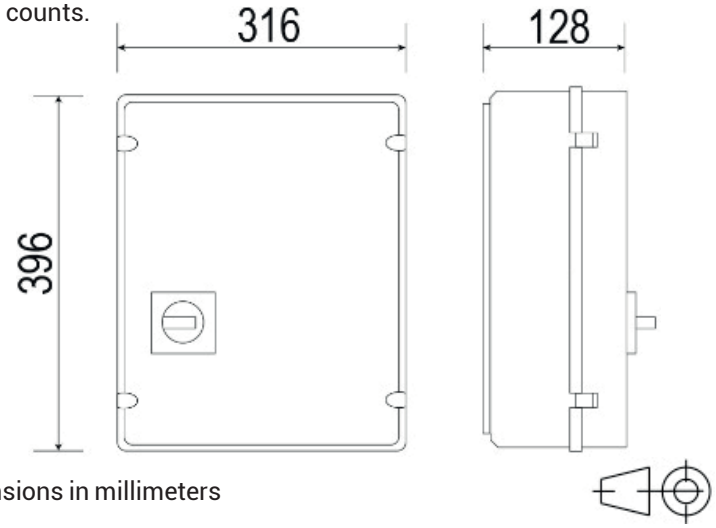
OPTIONAL ACCESSORIES: A842 - NETWORK ANALYZER

The optional is available only for indoor units.
The optional is supplied in kit for external installation to the machine, and includes:

- Main switch with door lock safety;
- Fuse;
- Network transducer;
- Current transformers, one for each power supply phase cable;
- Terminals.



This device provides continuous measurement of power consumption, monitoring current, voltage and power. These values are sent to unit microprocessor via RS485 serial cable, as shown on the unit wiring diagram.
The displayed variables are:
• Phase to phase voltage, only for three-phase units;
• Phase voltage (phase-neutral);
• Phase current;
• Neutral current only for three-phase units;
• Active phase power, only for three-phase units;
• Total active power;
• Active energy;
• Hour counts.



Dimensions in millimeters

Wall-mounting fixing screws not supplied.
Weight of the system: 5 kg
Electrical connections at Customer care



OPTIONAL ACCESSORIES: A492 - WATER LEAKAGE DETECTOR + ADDITIONAL SENSOR

The optional is available only for indoor units.
The optional is supplied in kit for external installation to the machine, and includes:
- Main switch with door lock safety;
- Fuse;
- Network transducer;
- Current transformers, one for each power supply phase cable;
- Terminals.



OPTIONAL ACCESSORIES: A511 - SMOKE DETECTOR

SMOKE DETECTOR
The device in supplied in mounting kit.
The optical smoke detector senses the presence of combustion by-products (visible smoke) and activates an alarm.
The operating principle is based on the light scattering technique (Tyn- dall effect).
The device is in conformity to ISO 7240-19 standard.

Technical features:

Material	ABS	Relative humidity	<93% not-condensing
Power supply	12...28 Vdc	Index of protection	IP 20
Normal current	50µA 24 Vdc	Testing by magnet	Yes
Alarm current	25mA 24 Vdc	Relay	max. 1A 30Vdc
LED visibility	360° (double led)	Signal repeater	14mA 24 Vdc
Storage temperature	-10...+70°C	Covered area	40m2 max.
Operating temperature	-10...+70°C	Shielded connection	Min. 0.5 mm2
Max. speed air	0.2 m/s	Color	White

Supplied as optional with unit to be connected and installed at customer care close to the unit.



OPTIONAL ACCESSORIES: A521 - FIRE DETECTOR

FIRE DETECTOR
The device in supplied in mounting kit.
The fire detector has been designed to identify temperatures at which fires may start. When the temperature exceeds the set threshold or when there is a rapid variation in temperature, the relay is activated to signal an alarm.
The device is in conformity to ISO 7240-19 standard.

Technical features:

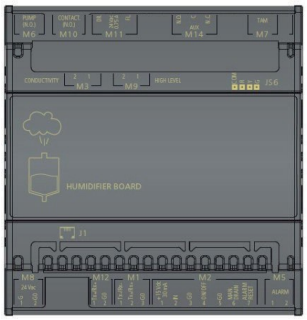
Material	ABS	Index of protection	IP 20
Power supply	12...28 Vdc	Testing by magnet	Yes
Normal current	50µA 24 Vdc	Relay	14mA - 24 Vdc
Alarm current	25mA 24 Vdc	Signal repeater	14mA - 24 Vdc
LED visibility	360° (double led)	Alarm temperature	62°C
Storage temperature	-10...+70°C	Covered area	40m2 max.
Operating temperature	-10...+70°C	Shielded connection	Min. 0.5 mm2
Relative humidity	<93% non-condensing	Color	White

The device is in conformity to EN 54-5 standard.



OPTIONAL ACCESSORIES: 4301/4303 - STEAM HUMIDIFIER

Modulating steam humidifier with immersed electrodes fitted with safety and running accessories.
A metallic cover on the top and tank ensure the highest levels of safety during operation.
Standard for safety flammability UL94: V0
The optional includes the combined temperature / humidity sensor on unit air intake and control board.
The accessory is factory installed and requires only water filling connection.
Humidifier water charge and discharge pipes are not supplied.
It is recommended to install a filter and a shut-off valve on water inlet pipe.
This humidifier produces non-pressurized steam by electrodes immersed in the water inside the cylinder: they bring the electric phase in thewater that works as an electrical resistance and overheats. The steamso produced is distributed with dedicated distributors and used for ambient humidification or for industrial processes.
CHARACTERISTICS OF THE SUPPLY WATER
The quality of the used water influences the evaporation process, so the humidifier can be fed with **not-treated water, only when potable and non-demineralised.**



Humidifier control board

LIMIT VALUES

		Min	Max
Hydrogen ions	pH	7	8.5
Specific conductivity at 20°C	σR, 20 °C µS/cm	350	750
Total dissolved solids	TDS mg/l	(1)	(1)
Dry residue at 180°C	R180 mg/l	(1)	(1)
Total hardness	TH mg/l CaCO3	100 (2)	400
Temporary hardness	mg/l CaCO3	60 (3)	300
Iron + Manganese	mg/l Fe + Mn	0	0.2
Chlorides	ppm Cl	0	30
Silica	mg/l SiO2	0	20
Residual chlorine	mg/l Cl-	0	0.2
Calcium sulphate	mg/l CaSO4	0	100
Metallic impurities	mg/l	0	0
Solvents, diluents, soaps, lubricants	mg/l	0	0

(1) Values depending on specific conductivity; in general: TDS ≅ 0,93 * σ_R, 20 °C; R180 ≅ 0,65 * σR
(2) Not lower than 200% of the chloride content in mg/l di Cl-
(3) Not lower than 300% of the chloride content in mg/l di Cl-

WARNING:

- Use only with drinking water.
- There is no reliable relationship between hardness and water conductivity
- Do not treat water with softeners! This could cause corrosion of the electrodes or the formation of foam, leading to potential operating problems or failures.
- Do not add disinfectants or corrosion inhibiters to water, as these substances are potentially irritant.
- Is absolutely forbidden to use well water, industrial water or water drawn from cooling circuits; in general, avoid using potentially contaminated water, either from a chemical or bacteriological point of view.

Code		4301
STEAM PRODUCTION	kg/h	3.0
Power input	kW	2.3
Absorbed current (OA)	A	10.0
Max absorbed current (FLA)	A	14.1
Water content	l	3.9
Max water supply pressure	Bar	1÷8
NET WEIGHT (1)	kg	4
HYDRAULIC CONNECTION		
WATER INLET - ISO 228/1 - G M	Ø	3/4"

1. Value to be added to the weight of the standard unit. Does not include the weight of the water content.

OPTIONAL ACCESSORIES: P051 - DEHUMIDIFICATION

The system is automatic and checks for any increase in ambient humidity.
Components:
• Temperature / Humidity sensor on the air intake.
• Electronic control system of the dew point temperature for the combined intervention of cooling capacity and air flow.



OPTIONAL ACCESSORIES: P161 - T/rH AIR INTAKE SENSOR

The accessory replaces the temperature sensor installed on the air intake in the indoor unit.
The sensor is supplied with following option:
• Steam humidifier installation;
• Dehumidification system.
• Displaying of the relative humidity room value.

OPTIONAL ACCESSORIES: A431 - ELECTRIC HEATER

Electric heater consisting of finned aluminium elements, ensuring low surface temperature and deleting the air ionization problems.
The optional is installed downstream the main cooling coil.
In electric heaters with three working steps the activation is binary type. Components:
• Electric heater in aluminium armoured elements with integral fins;
• Electrical control;
• Safety thermostat.



A431 - STANDARD ELECTRIC HEATER

INDOOR UNIT			
MODEL		006	013
SIZE		F1	F1
VERSION (1)		U / O	U / O
THERMAL CAPACITY	kW	2.6	2.6
Max absorbed current (FLA)	A	11.3	11.3
First working step	kW	1.3	1.3
Second working step	kW	1.3	1.3
Third working step	kW	--	--
NET WEIGHT (2)	kg	5	5



OPTIONAL ACCESSORIES: A547 / A548 - CONSTANT FLOW / CONSTANT PREVALENCE

The optional is a differential pressure sensor with a 0…20mA output signal. The device is installed in the machine.

The sensor is connected to the microprocessor control of the indoor unit and allows the control of:

A547 - CONSTANT FLOW

The system controls the air flow of the air conditioner by measuring the static pressure before the inlet nozzle of the fan with the static pressure in the inlet ring.

Pressure control range from 0 to 1000 Pa.

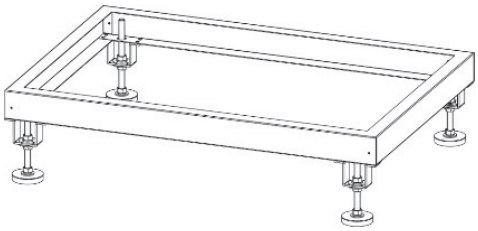
The air flow control system is not compatible with constant prevalen control system.

A458 - CONSTANT PREVALENCE

The system controls the air pressure in the raised floor (Under version) or in the duct (Over version). Through the relief piping of the room pressure (low pressure side) and the air supply of the fan (high pressure side) the fan rotation speed is controlled to keep the air pressure constant.

Pressure control range from 0 to 100 Pa.

The air pressure control system is not compatible with constant flow control system.



OPTIONAL ACCESSORIES: P041 / P042 / P043 - SUPPORT FRAME

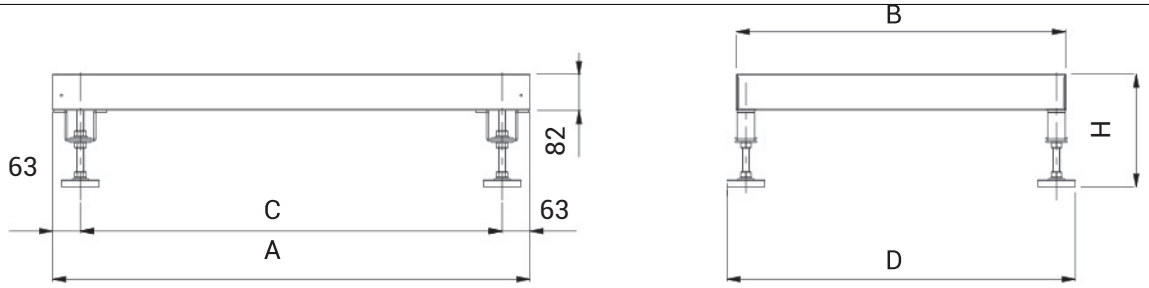
The optional is supplied in mounting kit.

It is not possible to match the base frame with plenum installed under the machine.

For a correct installation of the air conditioner, we suggest you utilize a gasket between the base frame and the unit base.

The base frame is available in 3 models with 3 different heights.

The optional is not suitable for installation in seismic areas.



SIZE		F1
VERSION (1)		U / O
A	in [mm]	23.62 [600]
B	in [mm]	19.68 [500]
C	in [mm]	18.66 [474]
D	in [mm]	21.29 [541]

MODEL		Hmax350	Hmax450	Hmax510
Code		P041	P042	P043
H min height	in [mm]	10.03 [255]	13.97 [355]	15.74 [400]
H max height	in [mm]	13.77 [350]	17.71 [450]	20.07 [510]

1. U = Under, downflow / O = Over, upflow

OPTIONAL ACCESSORIES: A272 - INSULATION

The optional is designed TO SUPPLY THE PANELING ONLY WITH FIRE REACTION; furthermore, allows a noise insulation of the panels of the air conditioners.
The pressure level reduction of the unit is about 2 dB(A). The reduction refers ONLY to the sound level radiated from the unit or in front of the unit. The noise level data on return and delivery air do not undergo reductions.
The accessory includes:

- Eternal part as standard panel.
- Internal part in galvanized steel sheet.
- The inside noise insulation with special soundproof material.

It is possible to provide the sandwich panels for the OVER units with air flow from the top. This implies that the air intake must necessarily be from the base of the unit with front blind panelling.
The accessory increases the unit weight:

SIZE		F1
OVER		
Weight increasing (1)	lb [kg]	57.32 [26]
UNDER		
Weight increasing (1)	lb [kg]	68.34 [31]

1. Add this value to the total unit weight

OPTIONAL ACCESSORIES: P084 –ePM$_{10}$ 50% AIR FILTERS

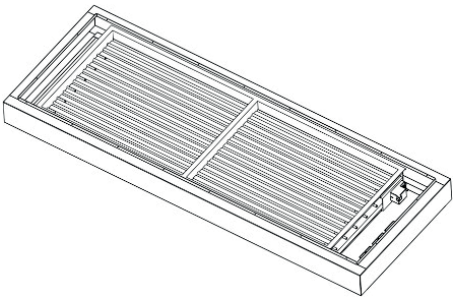
The ePM$_{10}$ 50% air filters (according to ISO EN 16890), replace the standard one.
The filters generate a pressure drops higher than the standard ones.
The filters are made of glass microfiber and are not regenerable.

INDOOR UNIT			
MODEL		006	013
SIZE		F1	F1
VERSION (1)		**U / O**	**U / O**
Additional pressure drops (2)	psi [Pa]	0.0023 [16]	0.0023 [16]
Reference air flow	cfs [m3/h]	19.62 [2000]	21.19 [2160]

1. U = Under, downflow / O = Over, upflow
2. Additional pressure drops referred to nominal air flow with clean filter.

OPTIONAL ACCESSORIES: B912 - REMOTE KEYBOARD K200

Kit consisting of a diverter and an additional standard graphic display prepared for wall mounting. It is used to replicate the display in the unit with a remote control up to 200m.



OPTIONAL ACCESSORIES: A532 - DAMPER WITH SPRING RETURN

Accessory installed on unit air delivery (Over flow version) or return (Under flow version) and it can be matched to plenum.
The optional is not suitable for installation in seismic areas.

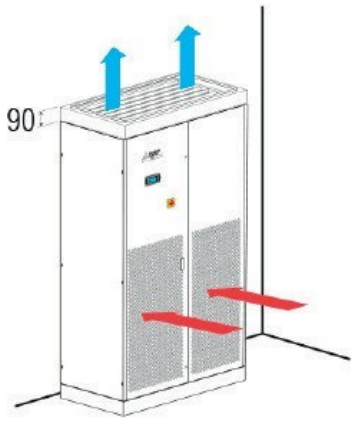
FRAMEWORK

- Frame in galvanized steel sheet with protective surfaces treatment in compliance with UNI ISO 9227/ASTMB117 and ISO 7253, and painted with epoxy powders. Colour RAL 9005;
- Opposed blade dampers in galvanized steel sheet;
- Actuator for damper control with spring return;
- Terminals for electric connection to the unit.

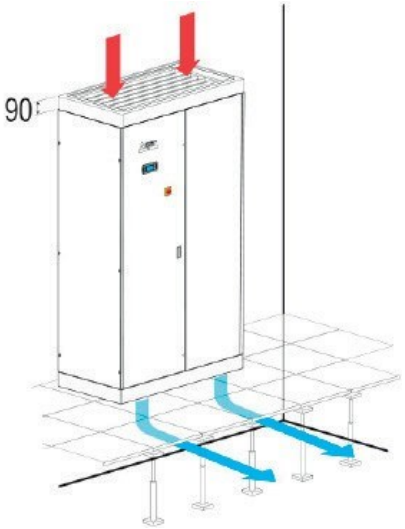
WORKING LOGIC

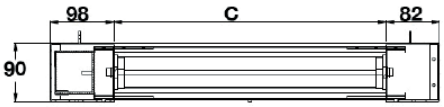
The damper opens at supply fans activation to allow air flow.
When the fans stop for failure or stop command, the damper closes, preventing air flow into the unit.
The damper closing is limited to guarantee minimum safety ventilation in the event of refrigerant leakage.

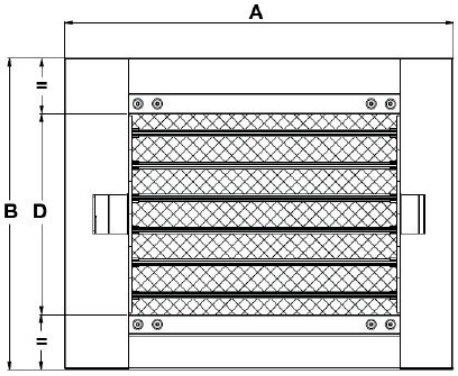
A532 OVER



A532 UNDER



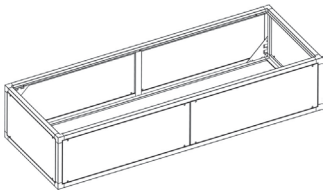


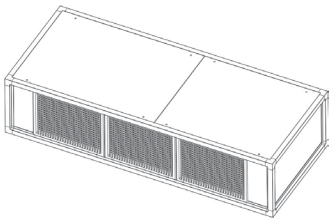


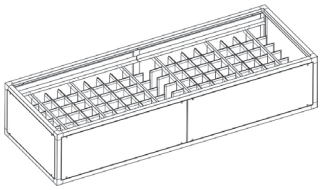
SIZE		F1
VERSION (1)		U / O
A	in [mm]	23.62 [600]
B	in [mm]	18.89 [480]
C	in [mm]	16.53 [420]
D	in [mm]	12.20 [310]
Weight (2)	lb [kg]	19.84 [9]

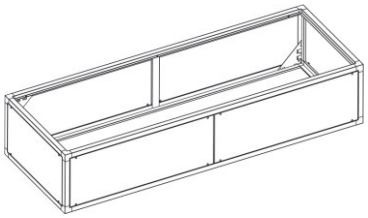
1. U = Under, downflow / O = Over, upflow
2. Add this value to the total unit weight

Dimensions in millimetres









OPTIONAL ACCESSORIES: P011 … P034 - SUPPLY / INTAKE AIR PLENUM

The optional is supplied separately and the installation on the unit is at Customer care.
The plenums can be used for all versions on supply and return air.
The plenums have same technical characteristics of the indoor unit cabinet.
It is possible to install only a single plenum to ensure stability to the unit.
The optional are not suitable for installation in seismic areas.

FRAMEWORK

- Frame in galvanized steel sheet with protective surfaces treatment in compliance with UNI ISO 9227/ASTMB117 and ISO 7253, and painted with epoxy powders. Colour RAL 9005;
- Opposed blade dampers in galvanized steel sheet;
- Actuator for damper control with spring return;
- Terminals for electric connection to the unit.

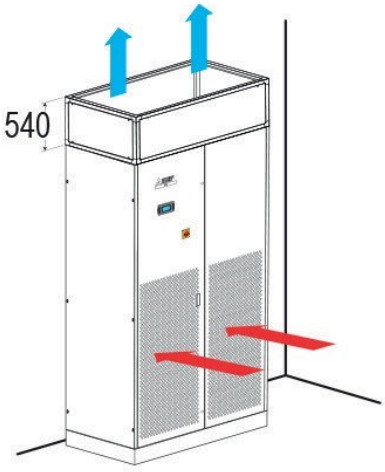
Type of plenum:

- Empty supply/intake plenum.
- Plenum with frontal and lateral grilles.
- Plenum with soundproof sections
- Plenum with frontal grille and soundproof sections

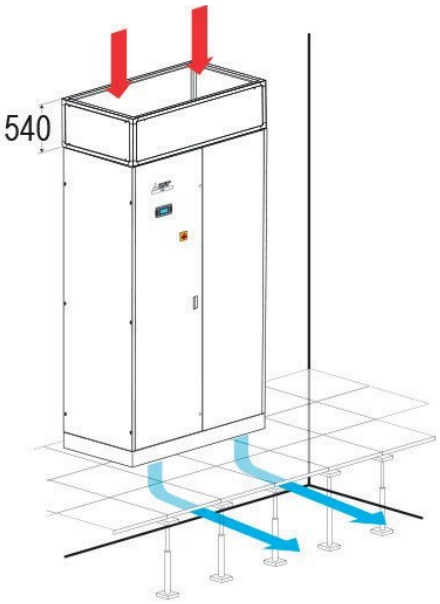
P011 / P012 - P031 / P032: EMPTY PLENUM

The plenum is void and can be used to rise the air inlet/outlet.
Remove the frontal panels for inspection.
The optional is not suitable for installation in seismic areas.

P011 / P012 OVER



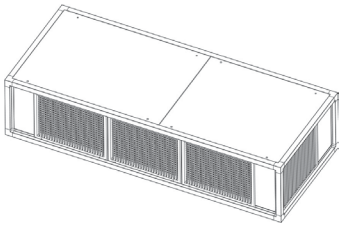
P031 / P032 UNDER



SIZE		F1
VERSION (1)		U / O
Weight (2)	lb [kg]	26.45 [12]
Weight CL.A1 (2)	lb [kg]	48.50 [22]

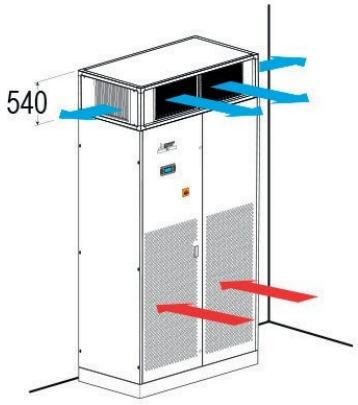
1. U = Under, downflow / O = Over, upflow
2. Add this value to the total unit weight

Dimension in millimeters

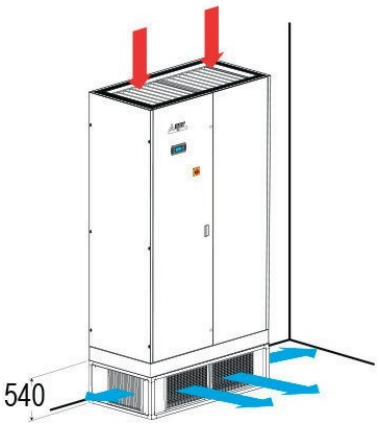


P013 / P014: PLENUM + 3 GRILLES
The plenum allows the air distribution directly into the room.
The plenum is supplied with air distribution grilles with double row adjustable fins on front and lateral side.
The optional is not suitable for installation in seismic areas.

P013 / P014 OVER



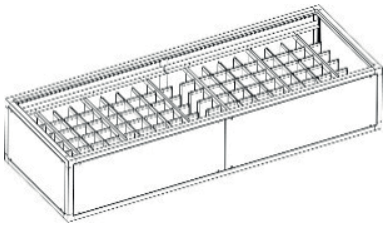
P013 / P014 UNDER



SIZE		F1
VERSION (1)		U / O
Weight (2)	lb [kg]	26.45 [12]
Weight CL. A1 (2)	lb [kg]	37.47 [17]

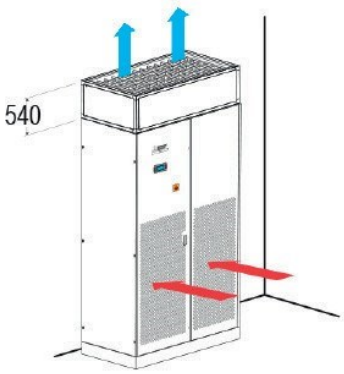
1. U = Under, downflow / O = Over, upflow
2. Add this value to the total unit weight

Dimension in millimeters

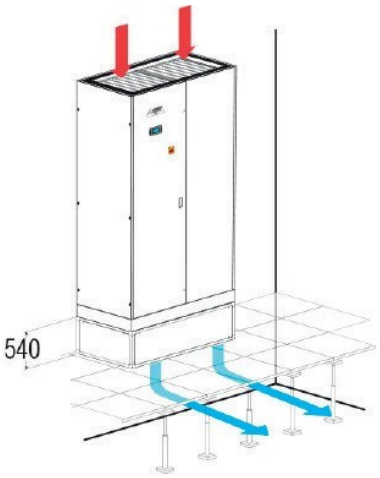


P015: SILENCED PLENUM
The plenum is fitted with sound absorbers to reduce the noise emission.
Remove the frontal panels for inspection.
The optional is not suitable for installation in seismic areas.

P015 OVER



P015 UNDER



SIZE		F1
VERSION (1)		U / O
Weight (2)	lb [kg]	39.68 [18]

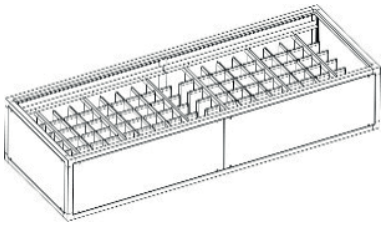
1. U = Under, downflow / O = Over, upflow
2. Add this value to the total unit weight

Dimension in millimeters

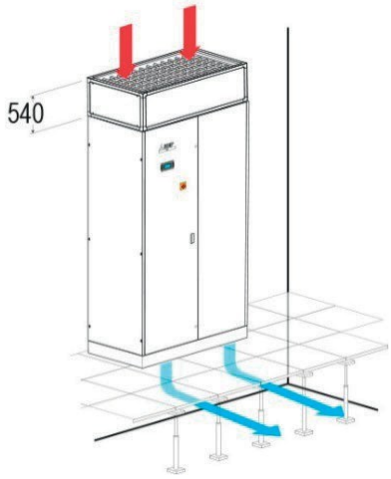
ACOUSTIC DATA

MODEL		006	013
SIZE		F1	F1
VERSION (1)		U / O	U / O
SOUND LEVEL ISO EN 3744 (2)			
On air delivery, Under (2)	dB(A)	60.8	64.9
On air delivery, Over (3)	dB(A)	60.8	64.9
Air flow (4)	cfs [m^3/h]	21.92 [2235]	25.56 [2606]

1. U = Under, downflow / O = Over, upflow
2. Noise pressure level at 1 meter in free field - ISO 3744
3. Air intake from the front
4. Nominal air flow with noise absorption partitions plenum installation and external static pressure 20 Pa.



P033 UNDER



P033: SILENCED INTAKE PLENUM

The plenum is fitted with sound absorbers to reduce the noise emission.
Remove the frontal panels for inspection.
The optional is not suitable for installation in seismic areas.

SIZE		F1
VERSION (1)		U / O
Weight (2)	lb [kg]	39.68 [18]

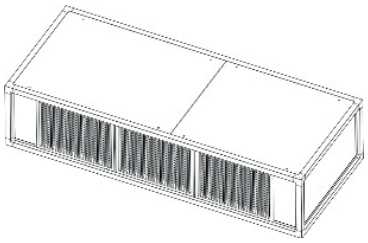
1. U = Under, downflow
2. Add this value to the total unit weight

Dimension in millimeters

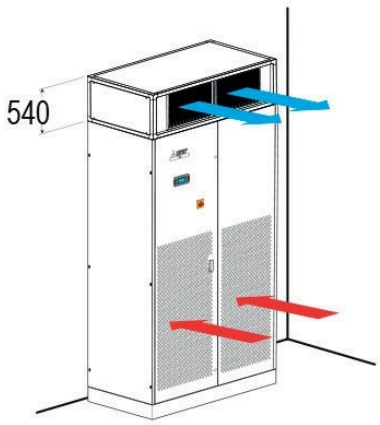
ACOUSTIC DATA

MODEL		006	013
SIZE		F1	F1
VERSION (1)		U	U
SOUND LEVEL ISO EN 3744 (2)			
On air delivery, Under (2)	dB(A)	56.7	60.7
Air flow (4)	cfs [m3/h]	21.92 [2235]	25.56 [2606]

1. U = Under, downflow
2. Noise pressure level at 1 meter in free field - ISO 3744
3. Nominal air flow with noise absorption partitions plenum installation and external static pressure 20 Pa.



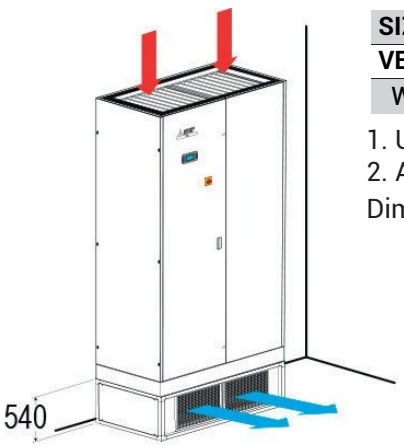
P016 OVER



P016: SILENCED PLENUM + 1 GRILLE

The plenum allows the frontal air distribution directly into the room and a noise reduction of the air delivery.
The plenum is supplied with air distribution grille with double row adjustable grills on front side and sound absorbers.
The optional is not suitable for installation in seismic areas.

P016 UNDER



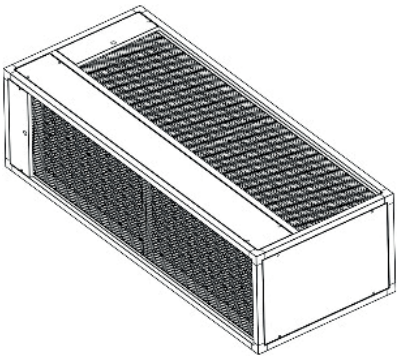
SIZE		F1
VERSION (1)		U / O
Weight (2)	lb [kg]	26.45 [12]

1. U = Under, downflow / O = Over, upflow
2. Add this value to the total unit weight

Dimension in millimeters

MODEL		006	013
SIZE		F1	F1
VERSION (1)		U / O	U / O
SOUND LEVEL ISO 3744 (2)			
On air delivery, Under	dB(A)	59.5	63.5
On air delivery, Over	dB(A)	59.5	63.5
Air flow	cfs [m3/h]	21.92 [2235]	25.56 [2606]

1. U = Under, downflow / O = Over, upflow
2. Noise pressure level at 1 meter in free field - ISO 3744



OPTIONAL ACCESSORIES: P034 - INTAKE FREE-COOLING PLENUM

AVAILABLE ONLY FOR UNDER VERSION.

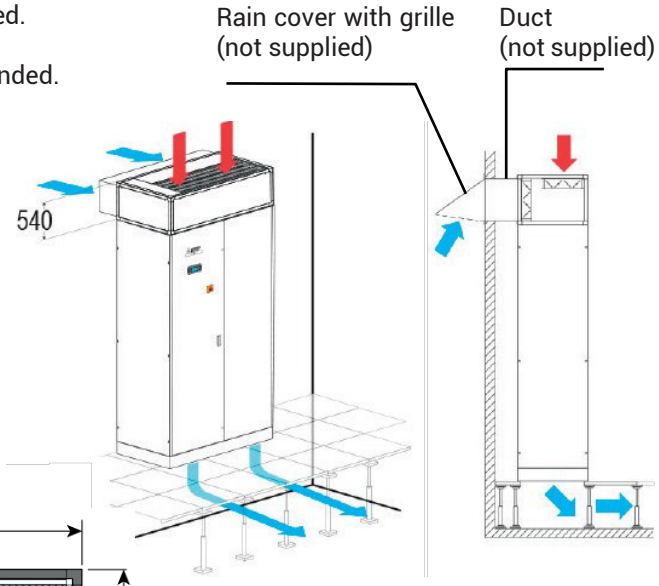
The optional is supplied separately and the installation on the unit is at Customer care.
The plenums have same technical characteristics and base dimensions of the machine cabinet.
The optional allow to obtain free-cooling by direct ambient air intake into the room.
The dampers are proportionally managed by the microprocessor control, that regulates the quantity of the ambient air to put in the room according to the set-point.
The optional is not suitable for installation in seismic areas.

COMPONENTS

- Frame in aluminium extrusion, painted with epoxy powders. Colour RAL 7016;
- Panels in galvanized steel sheet with protective surfaces treatment in compliance with UNI ISO 9227/ASTMB117and ISO 7253, and painted with epoxy powders. Colour RAL 7016;
- Panels insulated with polyurethane foam and seals to ensure air tight.
- Removable panels fixed with screws.
- Opposed blade dampers in galvanized steel sheet and safety grille for ambient air and room air suction.
- Actuator for each damper.
- Terminals for electric connection to the unit.
- Set of fixing elements to fasten the plenum to the unit.
- Combined Temperature / Humidity sensor on machine air suction. The sensor must be moved outside the airconditioners for a proper read of the room temperature value.
- Temperature sensor for outdoor air. The sensor must be installed in the outdoor air suction duct or anyway pro-tected against atmospherics agent.
- Expansion board for microprocessor control.
- Free contact for free-cooling operating status monitoring.
- Terminals on indoor unit for:

- 24 Vac power supply for the overpressure damper servomotor
- 0-10Vdc control signal for the servomotor

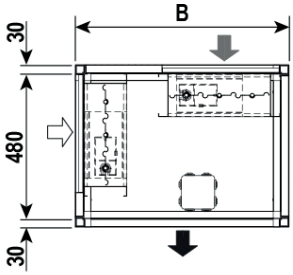
Servomotor and overpressure damper are not supplied.
Ducting for ambient air suction are at Customer care.
A rain cover with grille on ambient air intake is recommended.

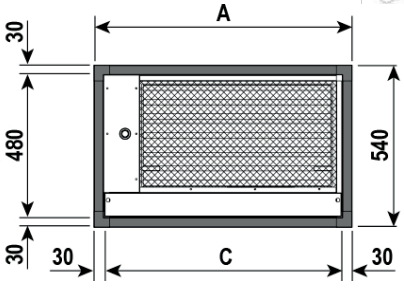


SIZE		F1
VERSION (1)		U
A	in [mm]	23.62 [600]
B	in [mm]	18.89 [480]
C	in [mm]	21.26 [540]
Weight (2)	lb [kg]	39.68 [18]

1. U = Under, downflow
2. Add this value to the total unit weight

Dimensions in millimetres



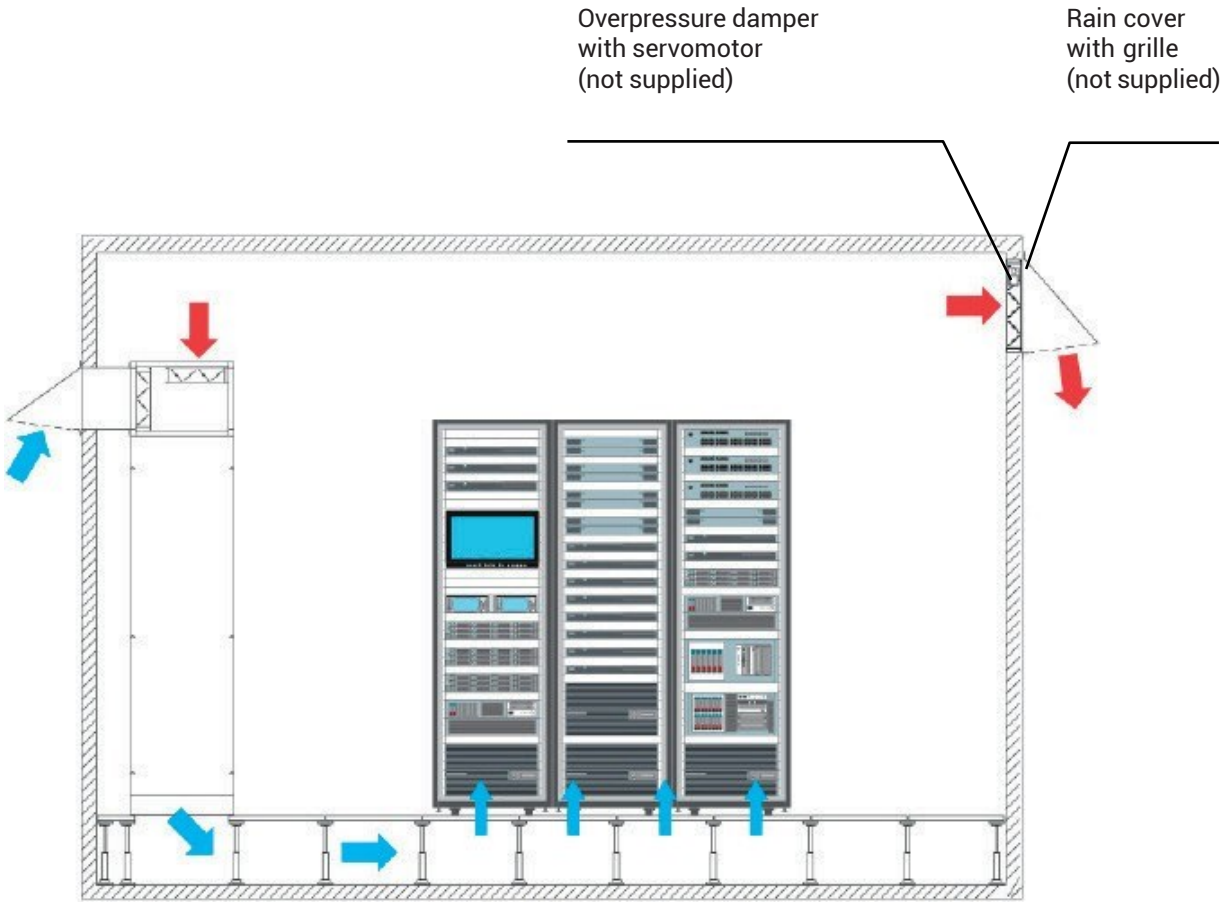


WARNING

IT IS COMPULSORY TO INSTALL INTO THE ROOM AN APPROPRIATELY SIZED OVERPRESSURE DAMPER TO ALLOW THE ROOM AIR EXHAUSTION DURING FREE-COOLING WORKING MODE

OVERPRESSURE DAMPER - Not supplied

During free-cooling operation, the air conditioner supplies ambient air directly into the room, this causes an increase in air pressure inside the room.
The overpressure damper avoids the increase in pressure in the room. The damper must be installed at the highest point of the room to expel excess hot air to the outside. Install the damper if possible in opposite position to air conditioner.
The damper is controlled by the modulating signal 0-10Vdc of the free cooling control of the air conditioner. The 24Vac power supply of the servomotor and the 0-10Vdc free-cooling signal is available on the unit's electrical terminal block (see wiring diagram for connections).
Air exhaustion must be protected with a rain cover and a grille (at Customer care).



DIMENSIONS OF THE OVERPRESSURE DAMPER

Unit model		006	013
Damper area	ft2 [m²]	2.15 [0.2]	2.15 [0.2]
Air flow	cfs [m3/h]	21.92 [2235]	25.56 [2606]

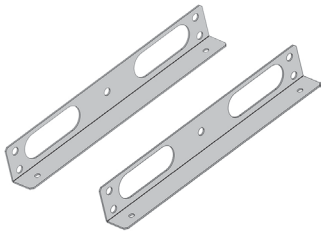
In case of several units installed in the same room that operate simultaneously. It is possible to install a single damper with adequate section.



OPTIONAL ACCESSORIES: 4666 - EXTERNAL AIR SENSOR

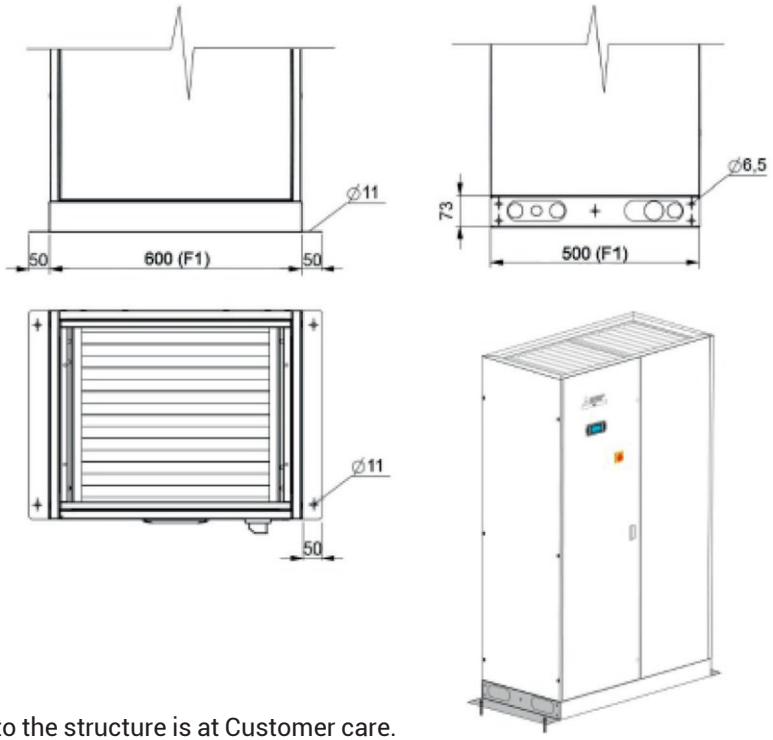
AVAILABLE ONLY FOR UNDER VERSION.

Ambient temperature probe.



OPTIONAL ACCESSORIES: P101 - ANTI-SEISMIC FIXING KIT

The optional is available for indoor unit.
The optional is supplied in mounting kit.
Two lateral supports that must be fixed at the machine basement sides, supplied with fixing bolts.
This is a safety device that must be mounted before the unit installation and connected to a structural part with adequate resistance in the installation site to prevent the risk of unit movement or overturning dueto earthquake. Fixing screws to the structural part not supplied.



The fixing of the unit to the structure is at Customer care.
To grant anti-seismic resistance the unit must be fixed to a structural part with adequate resistance with 4 steel screws M10 (not supplied). Each anchoring system must resist to a lifting traction force as shown in table.

INDOOR UNIT			
MODEL		**006**	**013**
SIZE		F1	F1
VERSION (1)		U / O	U / O
Number of screws	No.	4	4
Type of screw		M10	M10
Traction resistance needed, single anchor, Under	lb [kg]	2425.08 [1100]	2425.08 [1100]
Traction resistance needed, single anchor, Over	lb [kg]	2535.31 [1150]]	2535.31 [1150]

1. U = Under, downflow / O = Over, upflow

ANTISEISMIC FIXING SYSTEM FOR Mr. SLIM OUTDOOR CONDENSING UNIT.
The feet of Mr Slim outdoor condensing unit are foreseen as standard with holes for ground fixing.
The fixing of the unit at the structure is at Customer care.
To grant anti-seismic resistance the unit must be fixed to a structural part with adequate resistance with 4 steel



OPTIONAL ACCESSORIES: P091 - BACKUP MODULE CONTROLLER

AVAILABLE ONLY FOR UNDER VERSION.

The optional is available only for indoor units and it is installed within the electrical panel.

The optional accessory is not compatible with "Plenum for Free-Cooling" and with "Steam humidifier" optional accessories.

The system guarantees the microprocessor power supply for a few minutes in case of supply voltage failure.

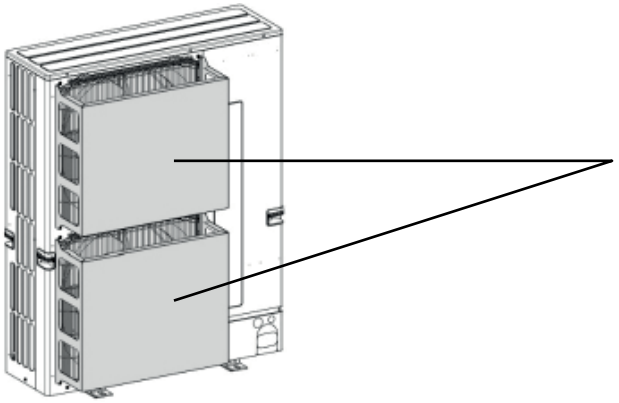
OPTIONAL ACCESSORIES: P061 - OUTDOOR UNIT LOW TEMPERATURE KIT

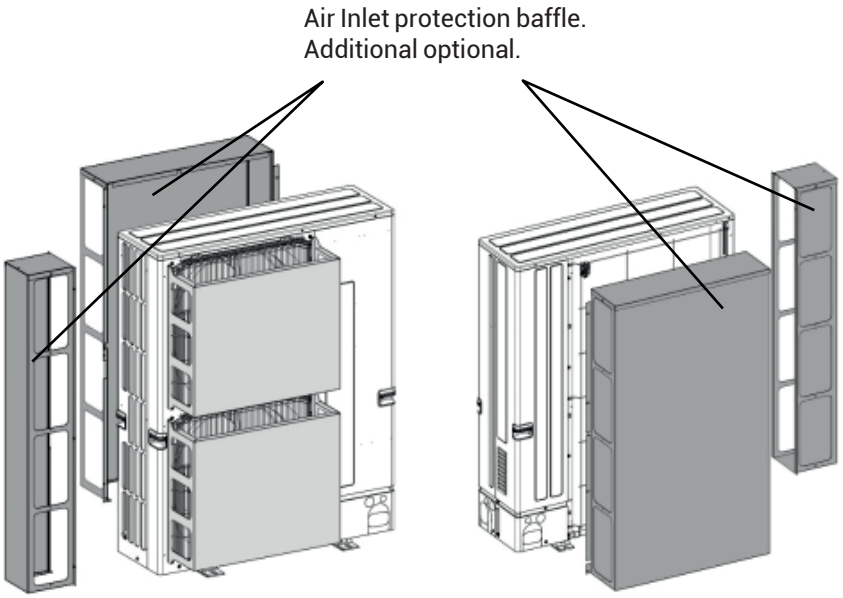
FOR OPERATION DOWN TO -15°C

AVAILABLE ONLY FOR Mr. SLIM CONDENSING UNIT.

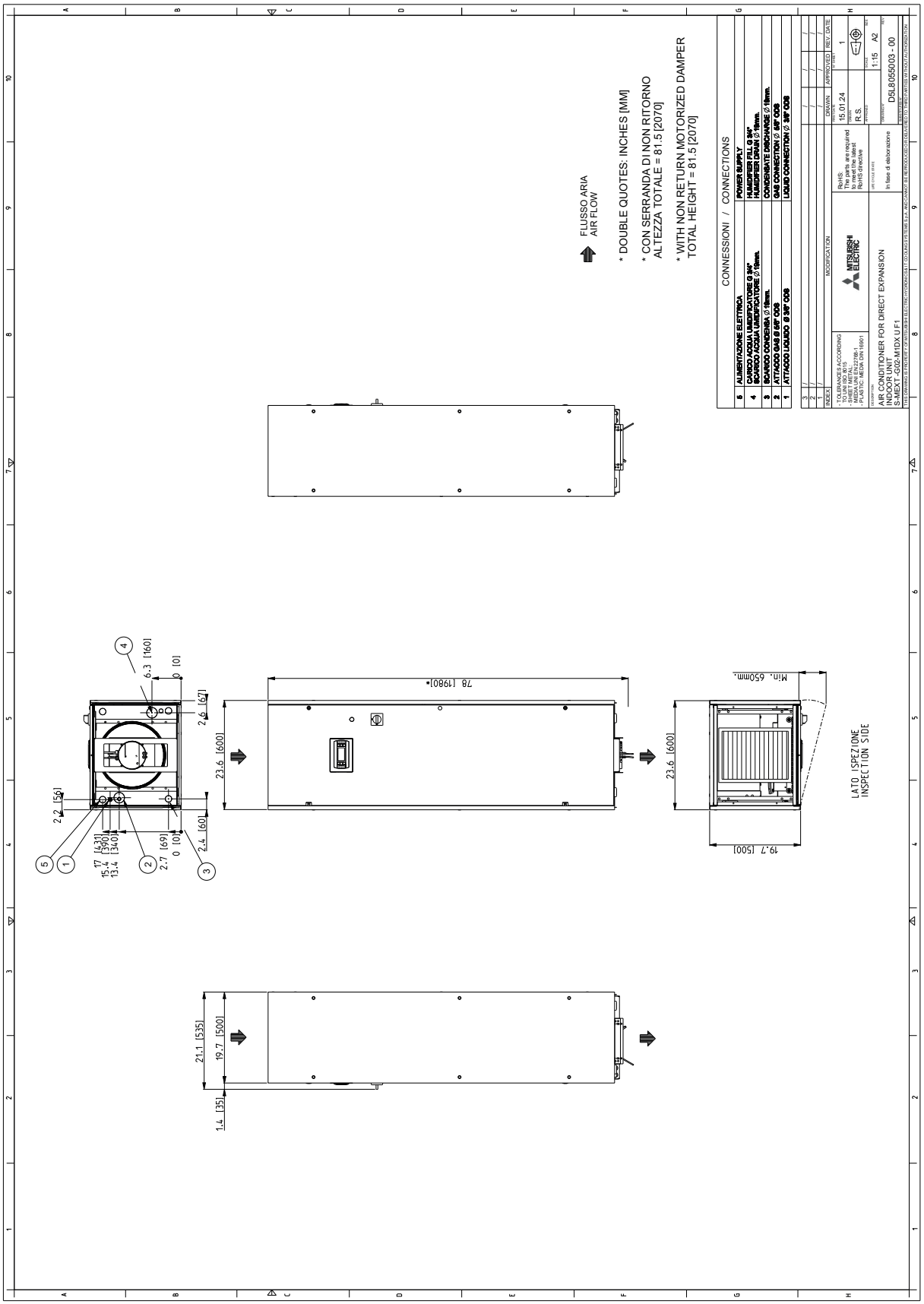
The optional is supplied with Mr. Slim separately and the installation on the unit is at Customer care. The option consists of air Inlet Protection Baffle, in addition to the air Outlet Guide as prescribed by Mr. Slim Data Book.

When installing the outdoor unit on a rooftop or other location unprotected from the wind, situate the air outlet of the unit so that it is not directly exposed to strong winds. Strong wind entering the air outlet may impede the normal airflow and a malfunction may result.

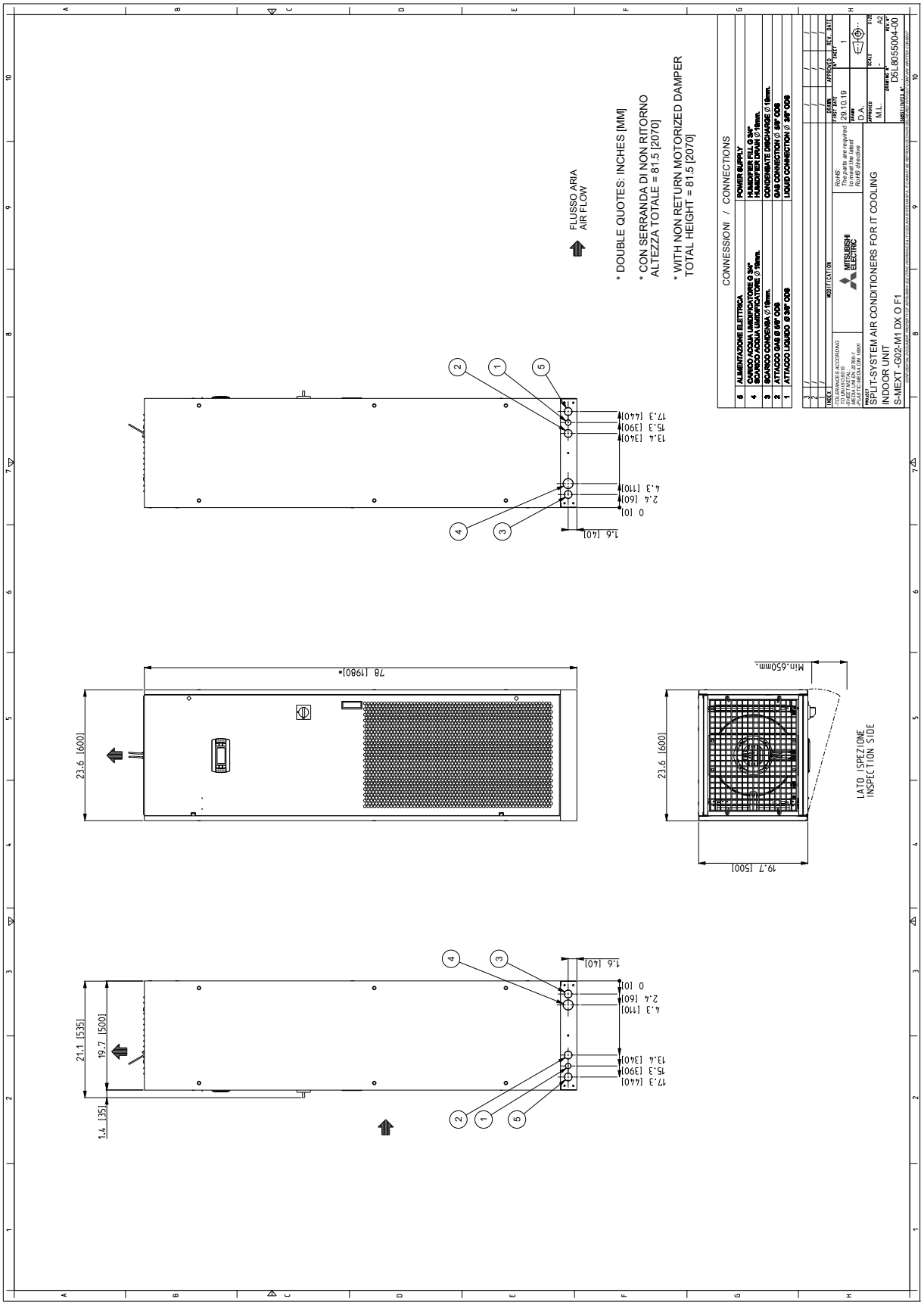




Dimensions in [mm] - UNDER F1

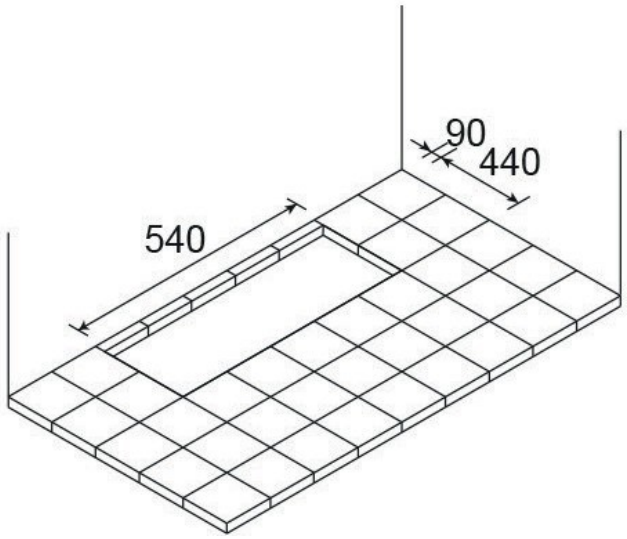


Dimensions in [mm] - OVER F1



HOLE IN THE RAISED FLOOR FOR DOWNFLOW VERSION

HOLE IN THE RAISED FLOOR WITHOUT SUPPORT FRAME

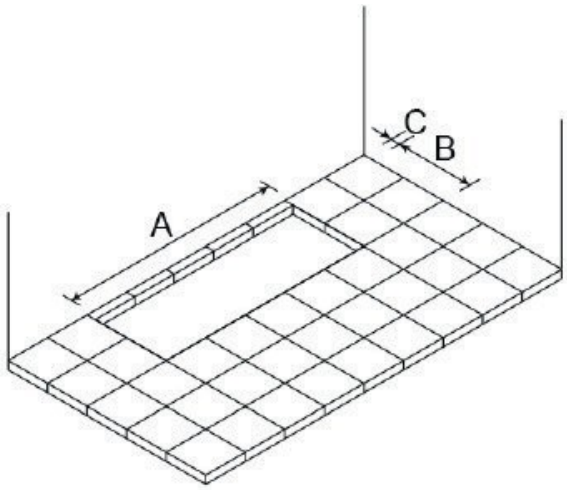




Foresee a hole in the floor with the following dimensions:

SIZE		F1
A	in [mm]	21.259 [540]
B	in [mm]	17.322 [440]
C	in [mm]	3.543 [90]

HOLE IN THE RAISED FLOOR WITH SUPPORT FRAME (OPTION)

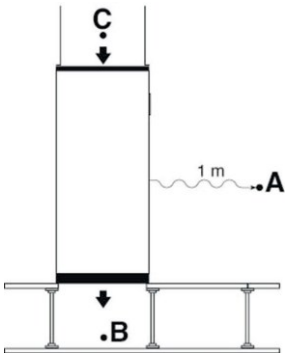




Foresee a hole in the floor with the following dimensions:

SIZE		F1
A	in [mm]	24.015 [610]
B	in [mm]	20.078 [510]
C	in [mm]	2.362 [60]

UNDER UNIT WITH DUCT ON AIR INTAKE



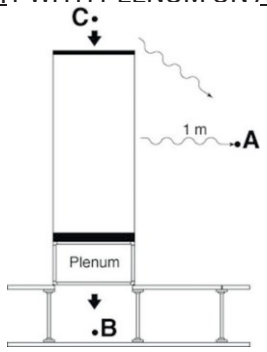
Lp **A** = Front side Under catalogue value

Lp **B** = Air delivery Under catalogue value

Lp **C** = Air intake Under catalogue value

The points **B** and **C** do not influence the point **A**

UNDER UNIT WITH PLENUM ON AIR DELIVERY



Lp **A** = Front side Under catalogue value

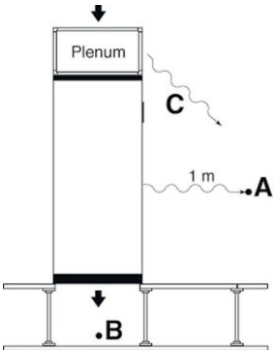
Lp **B** = Air delivery Under catalogue value – plenum noise reduction

Lp **C** = Air intake Under catalogue value

Lp **A+C** = $10 \log_{10} \left(10^{\frac{LpA}{10}} + 10^{\frac{LpC}{10}} \right)$

The point **B** do not influence the point **A**

UNDER UNIT WITH PLENUM ON AIR INTAKE



Lp **A** = Front side Under catalogue value

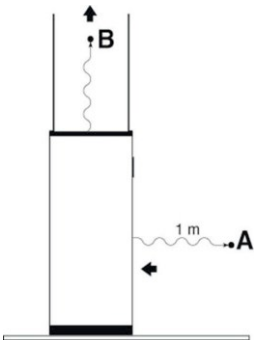
Lp **B** = Air delivery Under catalogue value

Lp **C** = Air intake Under catalogue value - plenum noise reduction

Lp **A+C** = $10 \log_{10} (10^{\frac{LpA}{10}} + 10^{\frac{LpC}{10}})$

The point **B** do not influence the point **A**

OVER UNIT WITH DUCT

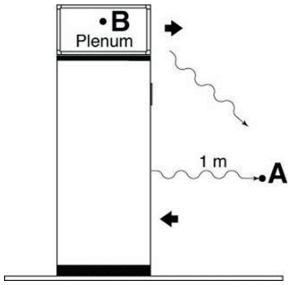


Lp **A** = Air intake Over catalogue value

Lp **B** = Air delivery Over catalogue value

The point **B** do not influence the point **A**

OVER UNIT WITH PLENUM ON AIR DELIVERY

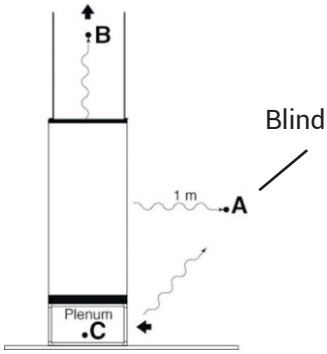


Lp **A** = Air intake Over catalogue value

Lp **B** = Air delivery Over catalogue value - plenum noise reduction

$$Lp\ \mathbf{A+B} = 10 \log_{10} (10^{\frac{LpA}{10}} + 10^{\frac{LpC}{10}})$$

OVER UNIT WITH DUCT AND PLENUM ON AIR DELIVERY



Lp **A** = Radiated Over catalogue value

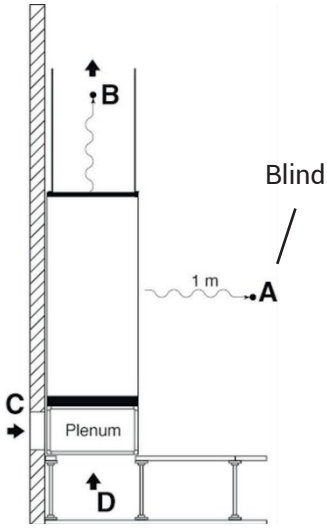
Lp **B** = Air delivery Over catalogue value

Lp **C** = Lp **A** + 6dB(A) - plenum noise reduction

$$Lp\ A+C = 10 \log_{10} (10^{\frac{LpA}{10}} + 10^{\frac{LpC}{10}})$$

The point **B** do not influence the point **A+C**

OVER UNIT WITH DUCT AND PLENUM ON AIR DELIVERY



Lp **A** = Radiated Over catalogue value

Lp **B** = Air delivery Over catalogue value

Lp **C** = Lp **D** = Lp A + 6 dB(A) - plenum noise reduction

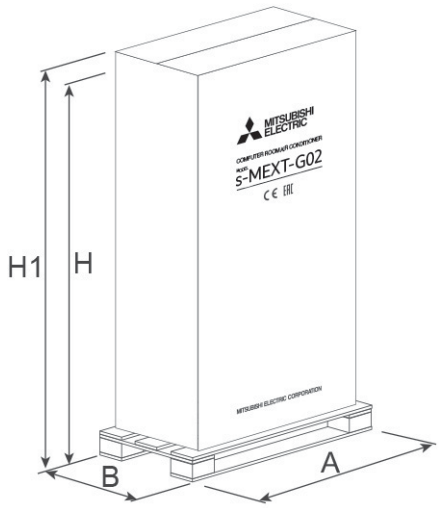
The points **B, C** and **D** do not influence the point **A**

IMPORTANT
The declared noise levels are intended in free field conditions.
The noise pressure level of an installed unit is affected by the room acoustic characteristics.
Please consider an average noise increase of +4/+6 dB(A).

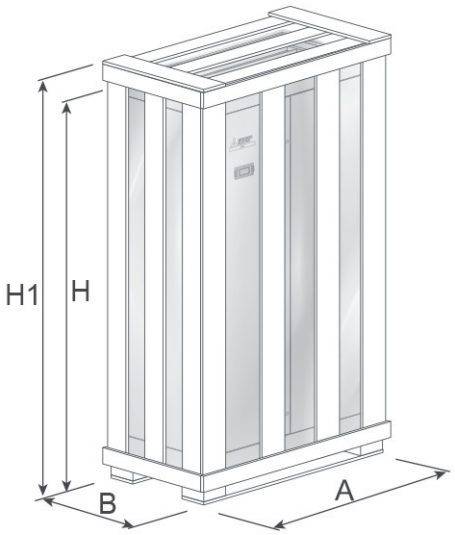
SHHIPMENT: S-MEXT-G02-M1 PACKING DIMENSIONS

Values referred to basic machines. The presence of some accessories increases the weight of machine.
The machines are shipped on pallet and covered with carton box.
On request packing on pallet covered with shrink wrap and wooden cage.
The optional "A532 Damper with spring return" is shipped mounted on the machine and increases its weight and height.
The shipping weight of the machine includes the unit bind.

STANDARD PACKING DIMENSIONS



OPTIONAL 9973: WOODEN CAGE PACKING DIMENSIONS



Model	Size	A in [mm]	B in [mm]	H in [mm]	H1 in [mm]
006	F1	29.52 [750]	25.59 [650]	82.67 [2100]	87.40 [2220]
013	F1	29.52 [750]	25.59 [650]	82.67 [2100]	87.40 [2220]

Model	Size	A in [mm]	B in [mm]	H in [mm]	H1 in [mm]
006	F1	31.10 [790]	27.16 [690]	88.58 [2250]	96.45 [2450]
013	F1	31.10 [790]	27.16 [690]	88.58 [2250]	96.45 [2450]

H1 = Machine with optional A532 Damper with spring return

SHIPMENT: S-MEXT-G00-M2 SHIPPING WEIGHT

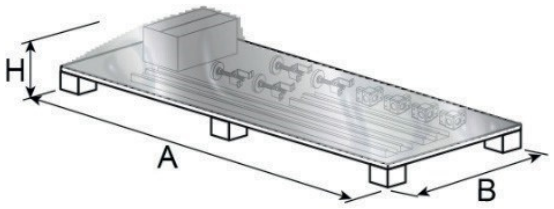
Version						
Model		006	013		006	013
Size		F1	F1		F1	F1
PACKING TYPE						
Standard	lb [kg]	297.62 [135]	308.64 [140]		277.78 [126]	284.39 [129]
Standard (1)	lb [kg]	317.46 [144]	328.48 [149]		297.62 [135]	306.44 [139]
Wooden cage	lb [kg]	346.12 [157]	357.14 [162]		326.28 [148]	335.10 [152]
Wooden cage (1)	lb [kg]	350.53 [159]	361.55 [164]		330.69 [150]	339.51 [154]

(1) Machine with optional A532 Damper with spring return

SHIPMENT: OPTIONALS PACKING DIMENSIONS AND SHIPPING WEIGHT

P041 / P042 / P043: SUPPORT FRAME

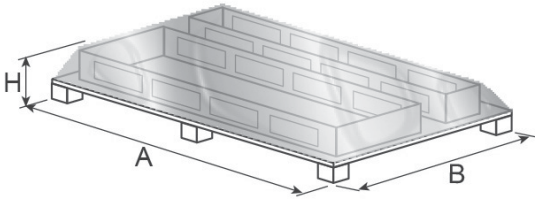
The frames are shipped on pallet and covered with shrink wrap.



Size		F1
DIMENSIONS		
A	in [mm]	47,24 [1200]
B	in [mm]	35,43 [900]
H	in [mm]	19,69 [500]
SHIPPING WEIGHT	lb [kg]	63.93 [29]

P061: OUTDOOR LOW TEMPERATURE KIT

The kit is shipped on pallet and covered with shrink wrap.

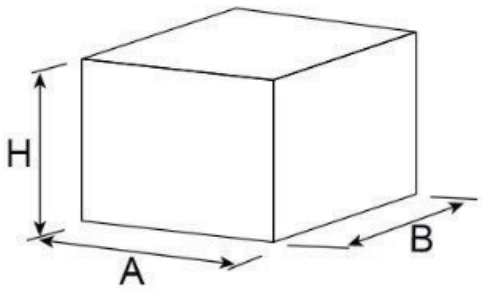


Size		F1
DIMENSIONS		
A	in [mm]	37,4 [950]
B	in [mm]	33,46 [850]
H	in [mm]	13,78 [350]
SHIPPING WEIGHT	lb [kg]	44.09 [20]

A842: NETWORK ANALYZER

P113: DUAL POWER SUPPLY - External ATS

The kit is shipped on pallet and covered with shrink wrap.



P113 - DUAL SUPPLY External ATS			
Size		**F1**	**F1**
DIMENSIONS			
A	in [mm]	16,14 [410]	15,75 [400]
B	in [mm]	16,14 [410]	15,75 [400]
H	in [mm]	8,27 [210]	8,27 [210]
SHIPPING WEIGHT	lb [kg]	11.02 [5]	26.45 [12]

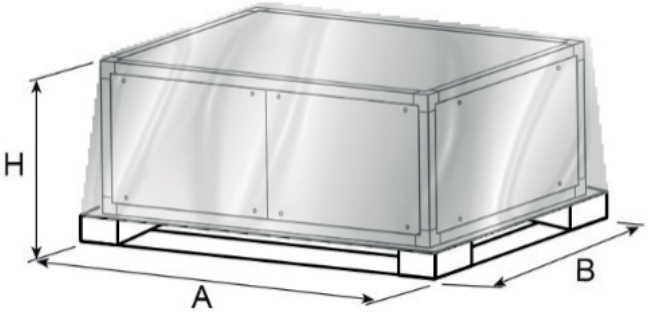
P101: ANTISEISMIC FIXING KIT

The kit is shipped together the machine.

Size		F1
Weigh	lb [kg]	5.07 [2,3]

P011 / P012 - P031 / P032: EMPTY PLENUM
P013 / P014: PLENUM + 3 GRILLES
P015: SILENCED PLENUM
P033: SILENCED INTAKE PLENUM
P016: SILENCED PLENUM + 1 GRILLE
P034: INTAKE FREE COOLING PLENUM

The plenums are shipped on pallet and covered with shrink wrap.



Size		F1
DIMENSIONS		
A	mm	29,53 [750]
B	mm	25,59 [650]
H	mm	26,38 [670]
SHIPPING WEIGHT		
P011 - Empty plenum “O” convertire	lb [kg]	50.70 [23]
P012 - Empty plenum “O”	lb [kg]	72.75 [33]
P031 - Empty plenum “U”	lb [kg]	50.70 [23]
P032 - Empty plenum “U”	lb [kg]	72.75 [33]
P013 - Plenum + 3 grilles “O” / “U”	lb [kg]	50.70 [23]
P014 - Plenum + 3 grilles “O” / “U”	lb [kg]	61.72 [28]
P015 - Silenced plenum “O” / “U”	lb [kg]	63.93 [29]
P033 - Silenced intake plenum “U”	lb [kg]	63.93 [29]
P016 - Silenced plenum + 1 grille + “O” / “U”	lb [kg]	50.70 [23]
P034 - Intake free cooing plenum “U”	lb [kg]	63.93 [29]

“O” Over / “U” Under

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Changes for the Better

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